



BIBLIOTECA NAZ.
Vittorio Emanuele III

XXIV

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37

NAPOLI

PHILIPPI LANSBERGII
TRIANGVLORVM
GEOMETRIÆ
LIBRI QVATVOR;

In quibus novâ & perspicuâ methodo, &
ἡτοιμασμένη, tota ipsorum Triangulo-
rum doctrina explicatur.

Ad Senatum Populumque Middelburgensem,

EDITIO SECVND A

Ab Autore recognita, multisque in locis aucta.



AMSTERDAMI,
Apud GVILIELMVM BLAEVW,
Anno cId Idc xxxi.



AD AMPLISSIMOS
ET MAGNIFICOS VIROS,
CONSVLES,
TOTVMQVE INCLYTÆ MIDDEL-
BVRGENSIVM REIPVB.
SENATVM,

Dominos suos plurimum observandos.

PHILIPPVS LANSBERGIVS.



AD FERRO vobis amplissimi
Viri, libros, quos de Tri-
angulorum Geometria
quos primùm in urbe ve-
stra concepi, post Goefæ
scripsi, & perscripsi; nunc verò, quantâ
à me fide potuit, & diligentia recogno-
vi. Sed quod scriptores ferè omnes in
operum suorum præfationibus facere

(.·) 2

con-

confueverunt , ut & lucubrationum suarum rationem, & dedicationis causas exponant ; id mihi potissimum faciundum duxi. Iam nunc enim mihi illos audire videor qui me & imprudentiæ , & temeritatis accusent. Imprudentiæ quidem , quòd eam Geometriæ partem explicandam susceperim , in cuius demonstratione feliciter laborarunt non pauci ex priscis Mathematicis ; & quam nostro etiam seculo multi magnique viri scriptis suis illustrarunt : temeritatis verò , quòd primum hunc , rudemque ingenii mei foetum , Amplitudini vestræ offerre ausus sim. Sed facilis erit utriusque criminis dilutio, apud eos, qui rem ipsam æstimare, & cæcos animi affectus (interea dum ipsis respondero) deponere voluerint.

Quod ad primum, hoc sanctè affirmo, non eo animo laborem hunc nobis susceptum esse, ut eorum monumenta qui
ante

ante nos scripserunt , & immortalitati
consecrata sunt, aut improbemus , aut è
manibus studiosorum abducamus : Ve-
neramur enim, & suspicimus omnes ; qui
in hoc scribendi genere versati sunt ; imò
aliorum scriptis non mediocriter adjutos
esse ingenuè fatemur:Ingenui enim est (ut
inquit ille) fateri à quo profeceris. Sed
quia plærique ita scripsere , ut doctiori-
bus tantum scripsisse videantur ; & fusiùs
quàm ut exiguo tempore perlegi possint:
non inanem operam positurum me puta-
vi; si rudiores instituendos deligerem , &
compendio doctiores juvarem. Feci igitur
quantum potui ; nihil ad ostentatio-
nem , nihil invidiæ causâ : hic unus mihi
scopus propositus ut multis prodessem.
Quod spero me assequutum esse : etsi
enim de utilitate operis, laborisque mei,
alios; non me verba facere oporteat: hu-
jus tamen plus se hinc cepisse fatebitur

Lector Philomathes (si animum intenderit) quam ego verbis verecundè spondere ausifim.

Cæterum quod in nomine vestro, hanc meam lucubrationem lucem adspicere voluerim; nemo temeritati tribuat: nam ut hoc facerem, multæ mihi gravesque causæ fuerunt. Prima, quòd illiberabilis & ingrati animi esse judicabam, hoc mei ingenii foetu in vestrâ urbe primùm formato, Amplitud. V. tanquam seminis vestri proventu malignè spoliare. Altera, quòd si labor hic noster literariæ Reipublicæ utilis futurus esset, sub vestro nomine longè gratissimum futurum putabam. Nam ut Amplitud. V. gloriosum est; ita studiis cumprimis utile, tantos viros Mathematicarum artium patronos esse. Postremo vestra illa in bonos humanitas, & maximè eos, quos aliquod doctrinæ nomen commendat aut literarum,
im-

impulit me , ut vicissim ego hoc gratitudinis officio , meam erga vos voluntatem fidemque testarer. Quapropter cum tot tantæque mihi causæ munusculi mei Amplitud. vestræ offerendi fuerint ; ut pro vestra summa æquitate benignè accipiatis, & certissimum meæ erga vos universos & singulos observantiæ *μνημόσυνον* esse statuatis, obnixè rogo : Ita enim laboris operæque meæ uberrimum fructum percepisse videbor. Valete Amplissimi & Magnifici Viri. Goesæ, IIII Kalend. April. Anno Christi CL IO XCI.

IN PHILIPPI LANSBERGII
TRIANGVLORVM
GEOMETRIAM
IANI DOVSÆ FILII
CARMEN.

F*elix ille animi nimis, egregiusque laboris,
Quem iuvat assidue niti prestantibus ausis,
Possit ut infectas terras excindere pestes,*

Et penitus patrio mentem desigere cælo.

Namque illum æterni Patris indulgentia major

Linquentem terras & sidera monte sequentem

Excipietque polo, & fulgentibus inferet astris.

Crediderim haud aliter præscos aguisse parentes,

Qui primi astrorum leges atque ætheris omnes

Reclusere vias, & Mundi flammea tecta

Accessere acie mentis, doctamque per artem

Orbibus affixere suis palantia signa.

Abrahamus

*Qualis & ille * Senex, structâ cui filius arâ*

Maclandus sedit, & Sethi antiquior illo

Progenies duplici cælum scrutata columnâ.

Nec non Caucaſeâ pendens de rupe Prometheus,

Qui tenuem nitidis ignem furatus ab astris

Finxerat humanos glebaque & flumine vultus.

Et tu, quem Oeteæ rapuere ad sidera flamme

Atque tuo quondam libratum vertice cælum.

Tum

*um * cui conspicuam erexit statuam Attica tellus,*
Et voluit fulvo linguam fulgere metallo.
Ut taceam te magne Plato, qui, ut in aethera ferret
Sublimes oculos, homini data lumina, dixti.
Ac tot Chaldaeos procures, quosve extulit ora
Assyriae, vel ubi mediâ sub luce Syenes
Umbra perit. Quos tu, LANSBERGI, ponè secutus
Nil mortale putans, liquidi templa ignea Mundi
Percurrens, stellisque ardentibus aethera fixum,
Tam certis spatiis numerorum includis Olympum, &
Momina mensurasque doces, flexusque recessusque
Innumeros; facili tot, tam diffusa coerces
Gyro; ut proclivem astriferi ad penetralia cali
*Ostendas callem * doctæ subnixus arena*
Remigio; sic non humeris sed pectore calum
Fulciit altus Atlas; nec equo sed mente volavit
Atque animi pennis liquidi ad confinia Mundi
Ille, Chimeraeas potuit qui vincere flammæ.
Nobilis & summo nunc splendet in æthere Perseus
Gorgonis anguicomæ domitor, qui nubila supra
Ventorumque lepes animas & fulmina vectus
Ingenio accessit Superum tonitralia templa,

De Hercule
 Astrologo
 vide Festum.
 Berosus.

id est Arith-
 metica & Geo-
 metria.

Bellerophon.

AD

VT cuique virtutem vigor non degener
 Irritat animo vivido, aut expectorat
 Imbellia insensato : ita orfis grandibus
 Excelsi, inanibusque sæcla vilia
 Mortalium promiscuè adlubescimus.
 Hic Murciae inter lenta curat otia:
 Hic ne pigretur, inter inficetias
 Sepelibles, ignobili dispendio
 Silentii festinat obsolescere.
 At flammeo mens impetu, plebis procul
 Minutiusculæ audet à se spernere
 Molitiones, atque semita ad decus
 Perenne sese inusitata emergere.
 Velut Philippe, patrius minutias
 Pertæsus ardor ingeni, te præpete
 Nifu penetrans in recessus Musicos
 Res arduas notis geni de viribus
 Consulere, perplexisque gaudet schematum
 Metis laboriosè arenam intexere
 Circique convexam rotam, ac orbis teres
 Glomeramen, aut (scruposum opus) trianguli
 Retexere cacumen trigeminum : aut solidum
 Coacta quadrantalium fastigia.
 At te beatum mentis, ubi de pulvere
 Te tollere audes, atque sidenti modum
 Terræ pigentis ponderi præscribere

Et

Et qua sola & qua sit frequens : vel impetum
Notare pernitem poli diffusilis:
Insigniumque noctis atræ, syderum
Cessantium sedes, vias labentium
Privas, sonoresque omnium inter se absonos
Melicosque quos noto cient motu modos,
Tum solis offecto latebras lumine,
Lunæque defecto labores sydere.
Divinioris ille mentis scilicet,
Consultus, & mortalium sublimior
Isthac fuit cadaverosa sorte, qui
Contagione corporis mentem suam,
Qui animum animo dividere, & cum cœlicis
Miscere felix occupavit cœtibus
Commercium : istique, genus heroum , mares
Qui liberalem vindicare murcido
Proporro curam oblivio, qui perpetrant
Maſtam novo peculio protollere
Sera ad nepotum postumorum secula.

IACOBVS GRVTERVS.

Αὐτὸς εἰς τὸν αὐτόν.

Εὖγε ΦΙΛΙΠΠΕ νέον τ' Φλαύδρων κῦδ' ὀρέρης,
 Θνητὸς ἐὼν Φήμης ἄρχεο ἀθανάτης.
 Δὸς πολυφροντίς παρὲς μέτρων γεῦμα πόνοιο,
 Θῆς πε κλέει κείνων σὲ τε φαίνότερον.
 Ως μίτῃ εἰχόμεν λαβυρίνθῃ ἔρκεα γνάμπη·
 Καὶ καπιδυ Θησεὺς δαίδαλα χ' αἰέδου·
 Τὸν μετρηκὴ τρόπον εἰς διαχόσμη τάξιν ἀπαίρου,
 Γῆς πε πέρας ἡγεῖτ' ἑρμανίης πε πόρος.
 Διούπρ' ἢ πολυμήτῃ τέκλον, ἄγκεια ὅστις
 Γῆς ναίων, κύκλῳ εἰσεπέρησ' ἀβάτης.



G E O M E T R I Æ

T R I A N G V L O R V M

L I B E R I

*De magnitudine rectarum linearum quæ circa Circuli
peripheriam considerantur.*

I.



TRIANGVLORVM Geometria est, quæ ex tribus quibuscunque, vel angulis, vel lateribus, in rectilineo aut Sphærico Triangulo datis, reliquorum laterum angulorumque dimetiendorum rationem tradit, adminiculo Canonis Triangulorum, ex magnitudine rectarum linearum, quæ circa circuli peripheriam considerantur, compositi.

Suscepta nobis est explicanda Triangulorum Geometria, recte igitur à definitione ejus auspicamur: omnis enim quæ à ratione suscipitur de aliqua re institutio, debet à definitione proficisci, ut intelligatur id de quo disputatur. Definitio autem præmissa cum à partibus totius doctrinæ sumpta sit, valde clara est, & sigillatim deinceps demonstrabitur.

Π Ο Ρ Ι Σ Μ Α.

Ejus itaque partes tres sunt. Prima ex primis Geometriæ elementis, rectarum linearum magnitudinem, quæ circa circuli peripheriam considerantur, demonstrat: Altera Canonis Triangulorum *ὀνόματι*: Postrema, usum ejus in calculo Triangulorum rectilineorum, & Sphæricorum.

2. Rectarum verò linearum quæ circa circuli peripheriam considerantur, aliæ sunt in circuli peripheria, aliæ extra, aliæ per circuli peripheriam.

Voces Mathematici cum solis subtenfis in Triangulorum Geometria utentur, rectarum solummodo magnitudinem quæ in circulo sunt investigabunt. Nobis

A

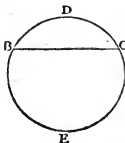
verò

verò cum plenior, planiorque mensurandi ratio explicanda sit, etiam earum quæ extra & per circuli peripheriam sunt, magnitudo demonstranda est.

De magnitudine rectorum in Circuli peripheria:

3. In circuli peripheria considerantur Subtensa, & Sinus.

4. Subtensa est recta linea in circulo, dirimens eum in duo segmenta; & utrumque pariter subtendens.



Talis est in adjecto schemate recta B C. dirimit enim circulum BDCE in duo segmenta, BDC & BEC: & utrumque pariter subtendit.

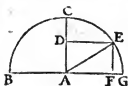
5. Sinus, est recta linea in semicirculo, ab arcus termino perpendicularis.

Vox Sinus Arabica est, & proinde barbarâ; sed cum longo usu approbata sit, & commodior non suppetat, nequaquam repudianda est: faciles enim in verbis nos esse oportet, cum de rebus convenit.

6. Sinus rectus est aut versus.

Recentiores aliqui Sinum dividunt in primum & secundum: nam cum ex præmissa Sinus definitione, versus non minus perpendicularis sit quam rectus, etiam rectum esse contendunt, & proinde vitiosam distributionem Philosopho ubi partes conveniant. Verum cum hoc verso Sinui proprium sit, quod recto versus sit, rectus solummodo κατὰ τὴν; nulla causa est ab usitata divisione recedendi.

7. Sinus rectus est recta linea in semicirculo, ab arcus termino perpendicularis in diametrum, dividens semicirculum in duo segmenta; ad quorum utrumque pariter refertur.



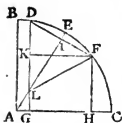
Talis est in adjunctâ figurâ recta EF; est enim ab E arcus termino, perpendicularis in diametrum BA FG; dividitque semicirculum BCEG in duo segmenta, GE, & BCE, ad quorum utrumque pariter refertur.

ΠΟΡΙΣΜΑ.

Itaque Sinus rectus, est semissis Subtensæ arcus dupli.

Nam quod Subtensa est in circulo, id Sinus rectus est in semicirculo, quemadmodum definitiones Sinus recti & Subtensæ, inter se collatæ ostendunt.

8. Sinus



Quare cum Triangulum DLF æquiangulum sit; etiam æquilaterum est per quintam ejusdem: & proinde latus DF æquale lateri DL; & semissis illius DE per decimam primi elementorum, æqualis semissi hujus DK: quod erat demonstrandum.

ΠΟΡΙΣΜΑ.

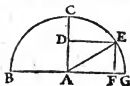
Quare, si duarū peripheriarum, æqualiter à circuli sextante remotarū, recti sinus dentur, etiā distantia peripheriæ alterutrius à circuli sextante rectus sinus innotescet; differentia enim sinuū datorum, est ipse sinus quæsitus.

In exemplo esto peripheria CF partium 50, distans ab E circuli totius sextante partibus 10; & ejus rectus sinus FH 7660: peripheria verò CD, partium 70, simili intervallo ab E remota; & sinus rectus ejus DG 9396. Differentia sinuum DK 1736, æqualis est sinui recto arcus EF vel ED, partium 10.

Quod si rectus sinus peripheriæ alterutrius, cum sinu recto distantia notus sit, etiam reliquæ peripheriæ rectus sinus invenietur: ablato enim sinu recto peripheriæ distantia, ex sinu recto peripheriæ sextante circuli majoris, relinquitur sinus rectus peripheriæ minoris; adjecto vero eodem sinu distantia ad sinum rectum peripheriæ sextante circuli minoris, componitur sinus rectus peripheriæ majoris.

In eodem exemplo auferatur sinus rectus distantia FI, vel æqualis ei DK 1736, ex DG 9396, sinu recto peripheriæ CD, circuli sextante majoris; relinquitur KG, vel æqualis illi FH per trigessimam quartam primi element. 7660, sinus rectus CF peripheriæ minoris. Addantur viceversa in unam summam sinus rectus DK 1736, & sinus rectus FH, vel KG, 7660; componitur sinus rectus DG 9396, competens peripheriæ CD, sextante circuli majori.

10. Sinus versus, est recta linea in semicirculo, ab arcus termino altero, ad sinum rectum perpendicularis.



Talis est recta GE, est enim perpendicularis ab altero termino peripheriæ GE, nempe G, in sinum rectum EF. Item BF: nam & ea perpendicularis est à peripheriæ BCE, termino altero B, ad EF sinum rectum peripheriæ ejusdem.

11. Si

11. Sinus peripheriæ versus, & complementi sui rectus æquantur radio.

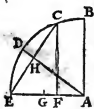
Sic in figura superiori, recta FG, sinus versus peripheriæ GE; & AF, sinus rectus complementi sui æquantur radio AFG. Nam per communem sententiam, Totum æquale est omnibus partibus suis simul sumptis.

ΠΟΡΙΣΜΑ.

Proinde radio dato, & sinu recto complementi peripheriæ, datur ipsius peripheriæ sinus versus. Dempto enim sinu recto complementi peripheriæ ex radio, relinquitur sinus versus peripheriæ data, quadrante circuli minoris: adjecto vero sinu recto excessus peripheriæ super circuli quadrantem ad radium, componitur sinus versus peripheriæ data; quadrante circuli majoris.

In exemplo detur radius AG 10, & AF 6, rectus sinus peripheriæ EC; complementi EG ad circuli quadrantem: erit FG 4, sinus versus peripheriæ EG, quadrante circuli minoris. Rursus, sit CE, excessus peripheriæ BCE, super circuli quadrantem BC; & sinus rectus ejusdem DE vel AF 6, radius AB ut supra 10: erit BAF 16, sinus versus peripheriæ BCE, quadrante circuli majoris.

12. Sinus rectus & versus, æque possunt sui arcus subtensæ.



Sit in quadrante BCDE, CF sinus rectus arcus CE; EF ejusdem peripheriæ sinus versus: & Subtensæ ejusdem CHE. Dico, CF sinum rectam, & EF versum, æquari CHE, subtensæ arcus sui CDE. In rectangulis enim triangulis per penultimam primi Elementorum quadrata laterum rectum ambiensium, æquantur quadrato lateris recto angulo oppositi: sed Triangulum CFE, est rectangulum ad F per septimam hujus: Latera vero rectum ambiensia sunt sinu CF & EF; oppositum recto angulo latera est CE, subtensæ arcus CDE. Itaque quadrata sinuum CF & EF, æquantur quadrato subtensæ CE: quod erat demonstrandum.

ΠΟΡΙΣΜΑ.

Quare cujusvis peripheriæ recto sinu, & verso cognito, invenitur

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rectus & subtensa ejus; & sinus rectus peripheriæ dimidiæ: quadrati enim recti sinus, & versu peripheriæ aggregati radix, datæ peripheriæ subtensa est; & semissis ejus, est sinus rectus peripheriæ dimidiæ.

In exemplo sit EF 6, & CF 8: erit CHE subtensa, 10; & HE, sinus rectus DE, peripheriæ dimidiæ per $\pi\omicron\pi\sigma\mu\alpha$ septimæ hujus 5: quadratum enim EF est 36, quadratum CF 64; horum aggregatum est 100, & radix ejus 10, pro subtensa CHE: Itaque HE vel HC est salum 5.

13. Sinus rectus peripheriæ in circuli quadrante, media proportionem est ad semiradium, & sinum versum arcus dupli.

Est in diagrammate datus arcus ED, ad quem duplus sit EC: dico AG semiradium, esse ad HE sinum rectum arcus DE; ut HE ad EF, sinum versum arcus dupli EC. Triangula enim AHE, & EFC similia sunt, ob rectos angulos ad F & H per septimam hujus, communem ad E. Itaque latera eosdem angulos continentia per quartam sexti elementorum sunt proportionalia. Quare ut AE latus recto appositum, ad latus CE recto oppositum; ita EH latus minus rectum ambiens, ad EF latus minus rectum ambiens. Sed ut AE ad CE; ita AG semiradius ad HE semissem subtensa, per decimam quintam quinti elementorum. Ergo ut AG ad HE; ita HE ad EF, quod erat demonstrandum.

ΠΟΡΙΣΜΑΤΑ duo.

Itaque semiradio dato, & cujuscvis peripheriæ sinu recto, datur etiam sinus versus peripheriæ duplæ: Nam ut semiradius se habet ad sinum rectum peripheriæ datum; ita sinus rectus peripheriæ datus, ad sinum versum duplæ.

In exemplo sit AG semiradius 5, & HE 6; erit EF 7 paulo plus. Nam ut AG 5 ad HE 6; ita HE 6 ad EF 7 paulo plus, sinum versus CE peripheriæ duplæ. hinc verò rectos sinus AF & FC invenire non est difficile, undecima & octava hujus hoc indicantibus.

Dato vero semiradio, & sinu cujuscunque peripheriæ verso, invenitur & sinus rectus peripheriæ dimidiæ: factum enim
à semi-

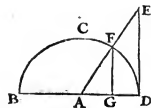
femiradio per datæ peripheriæ sinum verſum, æquatur inui recto peripheriæ dimidiæ.

In eodem exemplo, detur AG femiradius 5; & FE ſinus verſus peripheriæ DE 7: erit HE ſinus rectus peripheriæ dimidiæ 6 fere. Nam ut AG 5 ad AE: ita HE eſt ad FE 7. Factus verò ab AG 5, per FE 7, ſcilicet 35, eſt æqualis facto per ſe, per vigefimam ſeptimam Euclidis. Quare huius radicis quadrata 6 fere, HE ſinui recto peripheriæ dimidiæ competit.

De quantitate rectorum extra circuli peripheriam.

14. Extra circuli peripheriam conſideratur rectora peripheriam tangens.

Talis eſt rectora DE, tangit enim peripheriam FD.



15. Tangens peripheriæ eſt rectora linea, extremo diametri perpendicularis, in radium per arcus terminum continuatum; ipſi arcui & reliquo ad ſemicirculum competens.

Ita in præcedenti figura, tangens DE eſt perpendicularis extremo diametri BAD, in radium AF continuatum per arcus terminum F: competens arcui FD, & reliquo ad ſemicirculum BCF.

16. Tangens peripheriæ ſe habet ad radium; ut peripheriæ ſinus rectus ad ſinum rectum complementi.

Eſto in præcedenti figura rectora ED, tangens peripheriæ FD; & ejuſdem rectus ſinus FG, complementi AG: radius AD. Dico rationem ED ad AD eſſe, ut FG ad AG. Triangula enim AFG, & AED, ſunt æquiangulara, ob rectos angulos ad D & G, communem ad A. Itaque per quartam ſexti elementorum latera habent proportionalia.

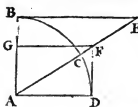
ΠΟΡΙΣΜΑ.

Quare ſinu recto peripheriæ cuiuſvis, & complementi cognito, ejuſdem tangens non latebit. Nam ut rectus ſinus complementi peripheriæ ſe habet ad ſinum rectum ipſius peripheriæ: ita radius ad tangentem ejuſdem.

In exemplo, ſit AG 6, FG 8, & AD 10; erit ED 13 paulo plus. Nam ut 6 ad 8; ita 10 ad 13 paulo plus.

17. Ra-

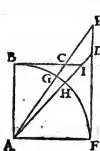
17. Radius media proportione est ad tangentes peripheriæ, & complementi.



Esto recta FD , tangens peripheriæ DC ; complementi vero BC , tangens EB : radius AB , vel AD . Dico AB , vel AD radium, media proportione esse ad DF & BE , tangentes peripheriarum DC & BC . Triangula enim ADF (vel AGF per trigessimam quartam primi elementorum) & ABE sunt æquiangula, ob rectos angulos ad B & D (vel G) communem ad A . Itaque per quartam Sexti elementorum, ut GA , tangens peripheriæ CD , ad GF radium: ita AB radius, ad BE tangentem complementi BC .

ΠΟΡΙΣΜΑ.

Quare tangentes arcuum complementorum suorum tangentibus reciproce proportionales sunt.

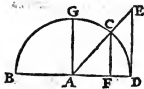


Sini enim in adjuncto schemate arcuum FH & FG , tangentes FD & FE ; & complementorum BG & BH , tangentes BC & BI . Dico rationem FD ad FE esse, ut BC ad BI . Nam per vigesimam octavi Euclidis, Similes plani sunt inter quos unus proportionalis medius intercidit. Sed inter FD & BI , item FE & BC , unus proportionalis medius intercidit, nempe radius: similes ergo plani sunt. Sed per penultimam definitionem septimi Euclidis similes plani latera habent proportionalia: Quare, ut FD ad FE , ita BC ad BI ; quod erat demonstrandum.

De magnitudine rectarum per circuli peripheriam.

18. Per circuli peripheriam consideratur recta peripheriam secans.

Talis est recta AE ; secat enim peripheriā DCB in C .



19. Secans peripheriæ, est recta linea per peripheriæ terminum, in tangentem ducta; peripheriæ sectæ & reliquæ ad semicirculū competens.

Ita in præmissa diagrapha, secans AE ducta est per terminum peripheriæ DC in tangentē ED : competique peripheriæ CD , & reliquæ ad semicirculū BC .

20. Ra-

20. Radius media proportione est ad peripheriæ finum rectum, & secantem complementi.

Est in figura superiori AF, sinus rectus peripherie GC; & AE secans peripherie CD (complementi prioris ad circuli quadrantem) dico AF sinum peripherie GC esse ad AC radium, ut AD radius ad AE secantem complementi. Triangula enim AFC, & ADE, sunt aequiangula; ob rectos angulos ad F & D, communem ad A. Itaque per quoniam sexti elementorum, ut AF ad AC; ita AD ad AE: quoderat demonstrandum.

ΠΟΡΙΣΜΑΤΑ *duo.*

Iraque ex sinu recto cuiusvis peripheriæ, etiam complementi secans datur: ut enim peripheriæ datæ sinus rectus se habet ad radium; ita radius ad secantem complementi.

In exemplo sit AF 5, & AD 10: erit AE 20. Nam ut 5 ad 10; ita 10 ad 20, secantem AE.

Et secantes arcuum complementorum rectis sinibus reciproce proportionales sunt.



Sint enim in adjunctâ diagraphâ, arcum ED & EC, secantes AF & AG; complementorum verò sinus AI & AH: Dico AF esse ad AG; ut AI ad AH. Nam per 20. & 17. Euclidis: Similes plani sunt inter quos unus proportionalis medius intercidit. Sed inter secantes peripheriæ, & complementorum sinus, radius est medius proportionalis: quare AF, AI, item AG, AH, similes plani sunt. Sed per penultimam definitionem septimi Euclidis, Similes plani latera habent proportionalia: Ergo, ut AF ad AG; ita AI ad AH; quod erat demonstrandum.

21. Secans arcus æqualis est Tangenti dati, & semiffis complementi.



*Est arcus DE, secans AG, tangens GE: Complementi
verò arcus BD, semissis BC (vel equalis ei EF) tangens
EH. Dico secantem AG, equalis esse EG tangenti arcus dati,
& EH semissis complementi. Angulus enim GAH, est æqua-
lis angulo CAE ex thesi; angulus verò EAH est equalis an-
gulo BAC. Itaque angulus EHA, vel GHA, est prioris
complementum, per trigessimam secundam primi elementorum:*

5

£ pro-

G E O M E T R I Æ

T R I A N G V L O R V M

L I B E R I I.

De Canonis Triangulorum Syntaxi

1. **E**X superioris doctrinæ fundamentis, Canonem Triangulorum componere non est difficile, certis hypothesebus ad hoc assumptis.

Geometriæ Triangulorum pars secunda nobis posita fuit in Syntaxi Canonis Triangulorum, ea igitur hoc libro demonstranda est.

2. Canon Triangulorum est, qui in assumpta circuli, & dimetiæntis mensura, omnium circuli quadrantis partium, scrupulorumque primorū, Sinus, Tangentes, & Secantes continet.

Veteres (ut supra dictum) solis subtensis utebantur, & proinde Triangulorum canonem appellabant eum, qui omnium semicirculi partium subtensus continebat. Iam vero cum præter subtensas & sinus, etiam tangentes, & secantes, circa circulum considerentur, sunt & ea in Canonem Triangulorum referendæ.

3. Mensura circuli assumitur partium c c c l x, pars l x scrupula prima, unum scrupulum primum l x secunda potest, & ita deinceps.

Hec circuli divisio est Ptolemæi, & recentiorum Mathematicorum; valde idonea ad numerationem: inter minores enim numeros nullus adeo multiplices partes habet, Vnciam, sextantem, quadrantem, truentem, quincuncem, semissem, septuncem, bessem, dodrantem, dextantem, denuncem, & assem. Retinenda igitur est, & ad eam aliæ proportionaliter accommodandæ sunt.

4. Dimetiens circuli statuitur particularum 20000000.

Ptolemæus diametrum assumit particularum 120; Arzabel 300. Neoterici 20000000 particularum eam statuunt: quæ mensura retinenda est; nam cum plurimum particularum sit, plenius diameter secatur, & proinde à multis subdvisionibus logistica liberatur.

5. Qualium dimetiens statuitur particularum 20000000, talium latus sexanguli circulo inscripti est 10000000.

Nam per 15 quarti elementorum latus sexanguli circulo inscripti est æquale radio. Radius autem diametri semissis est, quare dimidiata diametri mensura 20000000, datur radius, & æquale ei Sexanguli latus, particulatim 10000000.

6. Trianguli, 17320508 ferè.

Nam per 12 decimiertii Euclidis, Latus Trianguli circulo inscripti potentia est triplum radii: Radius autem est particularum, 10000000; ergo potentia ejus triplicata est particularum 30000000000000, & latus ejus 17320508 ferè.

7. Quadranguli 14142136.

Per sextam enim quarti elementorum, Recta quadrantem circuli subtendens, est latus quadranguli circulo inscripti: potest autem ea per penultimam primi elementorum duplum radii. Itaque potentia quadranguli est 20000000000000 & ejus latus 14142136.

8. Decanguli 6180430.

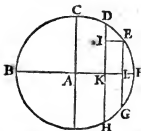
Nam per nonam decimiertii Euclidis, decanguli latus, est segmentum minus recte lineæ extrema & media ratione scilicet; Latus sexanguli & decanguli simul mensurantis. Itaque per undecimam secundi elementorum ablato semiradio 5000000, ex quadrato latere radii & semiradii aggregato 11180340: relinquitur decanguli latus 6180430.

9. Quinquanguli 11755704 ferè.

Nam per decimam decimiertii Euclidis, Latus quinquanguli in circulum inscripti, potest latus sexanguli & decanguli. Sed sexanguli latus est particularum 10000000, per quintam hujus: decanguli 6180430 per præmissam. Itaque per penultimam primi elementorum Quinquanguli latus est 11755704 ferè.

10. Quindecanguli 4158234 ferè.

Nam per decimam sextam quarti elementorum, recta inscripta inter basim Trianguli & Quinquanguli, ab eodem puncto in circulum ducti est latus Quindecanguli. Atqui talis est DE in adjuncta figura, inscripta inter basim Trianguli DH, & Quinquanguli EG, à B eodem puncto in circulum ducti: est ergo latus Quindecanguli. Hujus porro magnitudo investigatur hoc modo: datur DKH latus Trianguli per 6 hujus 17320508 ferè, & ELG Quinquanguli latus per præmissum 11755704 ferè. Itaque per 7 primi Triangulorum DK est 8660254; EL 5877852, sinus recti peripheriarum FD & FE: & differentia eorum DL 2782402. Per 8 verò ejusdem AK est 5000000;



5000000; AL 8090170 *sinus recti complementorum* CD & CE: & differentia eorum KL vel IE 3090170. Quare cum in Triangulo DIE rectangulo ad I, detur latus DI 2782402, & IE 3090170: per penultimam primi elementorum latus DE *Quindecanguli est particularum* 4158234 fere; quod erat demonstrandum.

11. Si Trianguli, Quadranguli, Quinquanguli, Sexanguli, Decanguli, & tandem ipsius Quindecanguli laterum semisses assumantur, ut angulorum dimidiorum sinus: & ex his complementorum singulorum, semissimumque sinus continuè investigentur; & contra, totus sinuum Canon hac inductione componitur.

*Sint inscriptæ laterum
supra inventæ.*

*Assumanturque horum semisses,
ut angulorum dimidiorum
sinus per septimam primi
Triangulorum.*

Trianguli	120.	17320508 per 6	hujus.	Partium	60	8660254.
Quadranguli	90.	14142196 per 7			45	7071068.
Quinquanguli	72.	11755704 per 9			36	5877852.
Sexanguli,	60.	10000000 per 5			30	5000000.
Decanguli, &	36.	6180340 per 8			18	3090170.
Quindecanguli	24.	4158234 per 10			12	2079117.

Dico ex harum peripheriarum sinibus datis, reliquarum quadrantis peripheriarum sinus datum iri: Si continuè harum complementorum, semissimumque sinus determinentur, & contra. Elementum veritatis suæ causam aliam non desiderat, quam inductionem ab experientia factam, quæ in hoc genere sufficit, cum numeri sensibus subjecti sint. Assumatur igitur exempli gratiâ arcus partium 12, ejusque sinus 2079117; adhibeaturque præsentis elementi methodus, hinc sequentium peripheriarum sinus dabuntur.

Continuè semisses ex periph. partium 12 deductæ.	& earum sinus per 12 vel 13 primi hujus.	harumque com- plementa.	& sinus per 8 pri- mi hujus.
6	1045285.	84	9945219.
3	523360.	87	9986295.
1 30	261769.	88 30	9996573.
0 45	130896.	89 15	9999143.
		B 3	& horum

<i>Et horum semisses,</i>	<i>Et sinus per 12 vel 13 primi huius.</i>	<i>utrumque semisses horum,</i>	<i>Et sinus per 12 vel 13 primi huius.</i>
42	6691306.	33	5446390.
21	3583679.	16 30	2840153.
10 30	1822355.	8 15	1434926.
5 15	915016.	27 45	4656145.
43 30	6883546.	<i>Et complementa,</i>	<i>Et sinus per 8 primi huius.</i>
21 45	3705574.	57	8386706.
44 15	6977905.	73 30	9588197.
<i>harumque complementa,</i>	<i>Et sinus per 8 primi huius.</i>	81 45	9896514.
48	7431448.	62 15	8849876.
69	9339804.	<i>horumque semisses,</i>	<i>Et sinus per 12 vel 13 primi huius.</i>
79 30	9832549.	28 30	4771588.
84 45	9958049.	14 15	2461533.
46 30	7253744.	36 45	5983246.
68 15	9288096.	<i>Et complementa,</i>	<i>Et sinus per 8 primi huius.</i>
45 45	7160319.	61 30	8788111.
<i>utrusque horum semisses,</i>	<i>Et sinus per 12 vel 13 primi huius.</i>	75 45	9692309.
24	4067366.	53 15	8012538.
34 30	5664062.	<i>Et semissis peripherie 61, 30,</i>	<i>Et sinus ejus per 12 vel 13 primi huius.</i>
17 15	2965416.	30 45	5112931.
39 45	6394390.	<i>huiusque complementum,</i>	<i>Et sinus per 8 primi huius.</i>
23 15	3947439.	59 15	8594064.
<i>Et complementa,</i>	<i>Et sinus per 8 primi huius.</i>		
66	9135455.		
55 30	8241262.		
72 45	9550199.		
50 15	7688418.		
66 45	9187912.		

His vero sinibus inventis assensendum quoque est complementum arcus partium 12, nempe 78; Et inde simili inductione semissimum peripheriarum, complementorumque sinus continue investigandi sunt. Quæ ratio si modo in huius peripherie sinu, sed Et reliquis supra inventis seruetur, eandem maxima pars Canonis absolvetur.

Ceterum cum ad Canonem complendum etiam prioris scrupuli Et sequentium aliquot sinus desiderantur, superest ut quomodo ex huius Theorematis methode, Et ii

intue-

investigandi sint. paucis ostendamus. Assumatur igitur sinus partium 0, 45' supra innotuit 130896: adhibitaque inductione superiori hujus semisses continue investigatur per 12 vel 13 primi Trianguli. Ita sequentiū peripheriarū sinus inveniuntur.

22'	30'	65449
11	15	32724 $\frac{1}{2}$

Porro cum ex his sinibus appareat eò usque pervenisse nos, ubi rectæ & curvæ differentia sensum prorsus evadit, tanquam una linea scilicet, nullus error committatur, si æquatione reliquis peripheriis 22' 30' minoribus sinus rectus ejus 65449 accommodetur. Ita enim sinus scrupuli unius dabitur 2909 scilicet, & scrupulorum 15', 43632; & ita deinceps. Ex his verò sinibus sinuum Canon perficitur. Si duplorum arcuum & complementorum sinus per decimam tertiam primi Triangulorum investigentur: & ex iis rursus semissimum complementorumque continue, dum totus sinuum Canon absolutus fuerit.

Hæc est sinuum Canonis condendi ratio, quæ cum ex superiori libri elementis deducta sit, ampliori demonstratione non est opus.

12. Ductis vero singulis totius quadrantis sinibus in radium, planisque sigillatim in sinus complementorum divisus, dantur singulæ totius circuli quadrantis peripheriarum tangentæ, totiusque tangentium Canon hæc methodo completur.

Hujus elementi ratio ex decimasexta primi hujus manifesta est. Nam per eandem Tangens peripheriæ se habet ad radium; ut peripheriæ sinus rectus ad sinum complementi. Itaque cum sinuum Canon ex superiori doctrina compositus sit, componetur etiam tangentium Canon: multiplicatis singulis totius quadrantis sinibus in radium, planisque horum sigillatim in complementorum suorum sinus divisus. Exempli gratia, datur sinus partium 30, 5000000, & complementi sui 8660254: ergo tangens partium 30 erit 5773502. Nam ut 8660254 ad 5000000; ita 10000000 se habet ad 5773502.

13. Secantium Canon componitur, radii quadrato in singulos totius circuli quadrantis sinus diviso, initio à sinuum Canonis fine facto.

Nam per vigesimam primi hujus, Radius media proportionē est ad peripheriæ sinum rectum, & secantem complementi. Itaque assumptis singulis totius quadrantis sinibus à fine Canonis, divisisque iis in radii quadratum; dantur totius quadrantis secantes: & proinde earum Canon hæc viâ completur. In exemplo superiori, datur partium 30 sinus rectus 5000000, & quadratum radii 10000000000000: ergo secans partium 60 assumptæ scilicet peripheriæ complementi est 20000000. Nam ut 5000000 ad 10000000; ita 10000000 ad 20000000. Atque

Atque

Atque hæc quidem methodus est Construtionis Canonis Sinuum, Tangentium & Secantium, in quâ tamen spontè à nobis ommissa sunt compendia superioris libri Theorematis 9, 21 & 22 demonstrata. Nam cum integer Triangulorum Canon ad manum esset, Sinuum quidem à præstantissimo Mathematico Ioanne Regiomontano, Tangentium ab Erasmo Reinholdo, Secantium verò ab Ioachimo Rhethico compositus, Latius ista persequi superuacuum duximus. Sufficit enim demonstrasse ex quibus fundamentis Canonis Triangul. constructio deducta, & qua methodo à præstantissimis artificibus completus sit. Reliquus est Canonis usus quem sequenti theoremate proponimus.

14. Canon Triangulorum in fronte partes circuli quadrantis, iu sinistro margine, partium scrupula prima, in communi interfectione, partis scrupulique sinus, tangentes vel secantes, cum differentia 60 scrupulis secundis competente completitur.

Canonis frons, vulgo tabule caput, suprema pars, aut transversalis margo appellatur: continetque totius circuli quadrantis partes. Sinister margo est in quo partium scrupula prima descripta sunt. Communis interfectio, vel angulus est, in quo descendens & transversalis ordo se mutuò intersecant. Differentia verò 60 secundis scrupulis competens, est excessus minoris sinus, tangentis vel secantis, super proximè maiorem.

ΠΟΡΙΣΜΑΤΑ duo.

Itaque assumptæ partis, & primi scrupuli sinus, tangens, vel secans in Canone est, quæ in angulo communi partis assumptæ, & scrupuli primi continetur: & contra.

In exemplo, sinus partium 23 & scrupulorum primorum 28 est 3982155: Talis enim in angulo communi sinuum canonis exhibetur. Viceversa 3982155 sinus est partium 2328: Inuentus enim sinus in Canone, partes 23 in fronte, scrupula verò prima 28 ostendit.

Parti vero & scrupulis primis, etiam secundis adhærentibus pars proportionalis differentiæ (quæ 1x scrupulis secundis competit) sinui, tangenti, vel secanti proximè minori addita, assumptæ peripheriæ sinum, tangentem, vel secantem componit; & contra.

Exempli gratiâ sinus partium 23, scrup. pr. 28, scrup. sec. 30, est 3983489.

Nam

Nam proximè minor sinus in Canone invenitur, 3982155; & differentia scrupulis 60 secundis competens est 2668: ergo proportionalis pars 30 secundis tribuenda est 1334 (Nam per auream regulam, ut 60 ad 2668: ita 30 ad 1334) hæc autem sinus minori 3982155 adjecta componit 3983489, sinum peripheriæ 23-28-30 quesitum. Viceversa peripheria sinus 3983489, ex sinuum Canone invenitur partium 23-28-30. Nam sinus proximè minor 3982155, competit arcui partium 23-28. Differentia verò hujus sinus & præcedentis dati est 1334: cui congruunt 30 scrupula secunda, (Nam ut 2668 differentia sexaginta (scrupulis secundis competens, ad scrupula 60 secunda: ita 1334 ad 30 scrupula secunda) Itaque his ad arcum 23-28 proximè minorem adjectis, componitur peripheria partium 23-28-30, sinus proposito 3983489, correspondens. Et hic quidem Canonis usus. Iam ipsum Canonem subijcimus.

CANON SINVM

o		Sinus	Tangens		Secans		
o	o	100000.00	o	Infinitum.	100000.00	Infinitum.	60
1	29.09	99999.99	29.09	343774667.38	100000.00	343774681.93	59
2	58.18	99999.98	58.18	171887319.15	100000.02	171887348.24	58
3	87.27	99999.96	87.27	114591529.94	100000.04	114591573.57	57
4	116.36	99999.93	116.36	85943630.48	100000.07	85943688.66	56
5	145.44	99999.89	145.44	68754886.93	100000.11	68754959.66	55
6	174.53	99999.84	174.53	57295721.34	100000.16	57295808.60	54
7	203.62	99999.79	203.62	49110600.28	100000.21	49110702.09	53
8	232.71	99999.73	232.71	42971757.06	100000.27	42971873.42	52
9	261.80	99999.66	261.80	38197099.08	100000.34	38197229.98	51
10	290.89	99999.58	290.89	34377370.74	100000.42	34377516.19	50
11	319.98	99999.49	319.98	31252136.71	100000.51	31252296.70	49
12	349.06	99999.39	349.07	28647773.40	100000.61	28647947.93	48
13	378.15	99999.28	378.16	26444079.88	100000.72	26444268.95	47
14	407.24	99999.17	407.25	24555198.33	100000.83	24555401.95	46
15	436.33	99999.05	436.33	22918166.36	100000.95	22918384.53	45
16	465.42	99998.92	465.42	21485762.18	100001.08	21485994.89	44
17	494.51	99998.78	494.51	20221874.99	100001.22	20222122.25	43
18	523.60	99998.63	523.60	19098418.64	100001.37	19098680.44	42
19	552.68	99998.47	552.69	18093219.83	100001.53	18093496.17	41
20	581.77	99998.30	581.78	17188539.93	100001.70	17188830.82	40
21	610.86	99998.13	610.87	16370019.10	100001.87	16370324.53	39
22	639.95	99997.95	639.96	15625908.37	100002.05	15626228.34	38
23	669.04	99997.76	669.05	14946502.08	100002.24	14946836.60	37
24	698.13	99997.56	698.14	14323712.17	100002.44	14324061.23	36
25	727.21	99997.35	727.23	13750744.68	100002.65	13751108.29	35
26	756.30	99997.13	756.32	13221850.86	100002.86	13222229.02	34
27	785.39	99996.91	785.41	12732133.65	100003.08	12732526.35	33
28	814.48	99996.68	814.50	12277375.54	100003.31	12277802.79	32
29	843.57	99996.44	843.60	11854018.02	100003.55	11854439.81	31
30	872.65	99996.19	872.69	11458865.01	100003.80	11459301.35	30

TANGENTIVM & SECANTIVM.

o	Sinus	Tangens	Secans	
30	872.65 99996.19	872.69 11458865.01	100003.80 11459301.35	30
31	901.74 99995.93	901.78 11089205.13	100004.06 11089656.01	29
32	930.83 99995.66	930.87 10742648.38	100004.33 10743113.80	28
33	959.92 99995.39	959.96 10417094.48	100004.61 10417574.45	27
34	989.00 99995.11	989.05 10110690.24	100004.89 10111184.75	26
35	1018.09 99994.82	1018.14 9821794.26	100005.18 9822303.32	25
36	1047.18 99994.52	1047.24 9548947.52	100005.48 9549471.12	24
37	1076.27 99994.21	1076.33 9290848.72	100005.79 9291386.87	23
38	1105.35 99993.89	1105.42 9046333.57	100006.11 9046886.26	22
39	1134.44 99993.56	1134.51 8814357.15	100006.44 8814924.39	21
40	1163.53 99993.23	1163.61 8593979.07	100006.77 8594560.86	20
41	1192.61 99992.89	1192.70 8384350.67	100007.11 8384947.00	19
42	1221.70 99992.54	1221.79 8184704.11	100007.46 8185314.98	18
43	1250.79 99992.18	1250.88 7994342.99	100007.82 7994968.41	17
44	1279.87 99991.81	1279.98 7812634.20	100008.19 7813274.16	16
45	1308.96 99991.43	1309.07 7639000.93	100008.57 7639655.44	15
46	1338.05 99991.04	1338.17 7472916.51	100008.96 7473585.56	14
47	1367.13 99990.65	1367.26 7313899.10	100009.35 7314582.70	13
48	1396.22 99990.25	1396.35 7161507.01	100009.75 7162205.15	12
49	1425.30 99989.84	1425.45 7015334.61	100010.16 7016047.35	11
50	1454.39 99989.42	1454.54 6875008.72	100010.58 6875735.95	10
51	1483.48 99988.99	1483.64 6740185.43	100011.01 6740927.20	9
52	1512.56 99988.55	1512.73 6610547.27	100011.45 6611303.59	8
53	1541.65 99988.11	1541.83 6485800.75	100011.89 6486571.62	7
54	1570.73 99987.66	1570.93 6365674.12	100012.34 6366459.53	6
55	1599.82 99987.20	1600.02 6249915.37	100012.80 6250715.33	5
56	1628.90 99986.73	1629.12 6138290.52	100013.27 6139105.02	4
57	1657.99 99986.25	1658.21 6030581.99	100013.75 6031411.04	3
58	1687.07 99985.76	1687.31 5926587.21	100014.24 5927430.81	2
59	1716.16 99985.27	1716.41 5826117.35	100014.73 5826975.49	1
60	1745.24 99984.77	1745.51 5728996.16	100015.23 5729868.85	0

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CANON SIN VVM

I	Sinus		Tangens		Secans		
0	1745.24	99984.77	1745.51	5728996.16	100015.23	5729868.85	60
1	1774.32	99984.26	1774.60	5635058.96	100015.74	5635946.19	59
2	1803.41	99983.74	1803.70	5544151.67	100016.26	5545053.45	58
3	1832.49	99983.21	1832.80	5456130.03	100016.79	5457046.35	57
4	1861.58	99982.67	1861.90	5370858.75	100017.33	5371789.62	56
5	1890.66	99982.12	1891.00	5288210.91	100017.88	5289156.37	55
6	1919.74	99981.57	1920.10	5208067.26	100018.43	5209027.22	54
7	1948.83	99981.01	1949.20	5130315.66	100018.99	5131290.15	53
8	1977.91	99980.44	1978.30	5054850.59	100019.56	5055839.65	52
9	2006.99	99979.86	2007.40	4981572.64	100020.14	4982576.23	51
10	2036.08	99979.27	2036.50	4910388.06	100020.73	4911406.20	50
11	2065.16	99978.67	2065.60	4841208.41	100021.33	4842241.10	49
12	2094.24	99978.06	2094.70	4773950.14	100021.94	4774997.38	48
13	2123.32	99977.45	2123.80	4708534.30	100022.55	4709596.08	47
14	2152.41	99976.83	2152.91	4644886.20	100023.17	4645962.53	46
15	2181.49	99976.20	2182.01	4582935.12	100023.80	4584025.99	45
16	2210.57	99975.56	2211.11	4522614.07	100024.44	4523719.49	44
17	2239.65	99974.91	2240.21	4463859.56	100025.09	4464979.52	43
18	2268.73	99974.25	2269.32	4406611.32	100025.75	4407745.83	42
19	2297.81	99973.59	2298.42	4350812.16	100026.41	4351961.22	41
20	2326.90	99972.92	2327.53	4296407.73	100027.08	4297571.34	40
21	2355.98	99972.24	2356.63	4243346.39	100027.76	4244524.54	39
22	2385.06	99971.55	2385.74	4191578.99	100028.45	4192771.68	38
23	2414.14	99970.85	2414.84	4141058.76	100029.15	4142266.00	37
24	2443.22	99970.14	2443.95	4091741.16	100029.86	4092962.95	36
25	2472.30	99969.43	2473.05	4043583.75	100030.58	4044820.09	35
26	2501.38	99968.71	2502.16	3996546.05	100031.30	3997796.94	34
27	2530.46	99967.98	2531.27	3950589.46	100032.03	3951854.89	33
28	2559.54	99967.24	2560.38	3905677.11	100032.77	3906957.09	32
29	2588.62	99966.49	2589.48	3861773.81	100033.52	3863068.34	31
30	2617.69	99965.73	2618.59	3818845.93	100034.28	3820155.00	30
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TANGENTIVM & SECANTIVM.

I	Sinus	Tangens	Secans	
30	2617.69 99965.73	2618.59 3818845.93	100034.28 3820155.00	30
31	2646.77 99964.96	2647.70 3776861.30	100035.05 3778184.92	29
32	2675.85 99964.19	2676.81 3735789.17	100035.82 3737127.34	28
33	2704.93 99963.41	2705.92 3695600.11	100036.60 3696952.82	27
34	2734.01 99962.62	2735.03 3656265.92	100037.39 3657633.18	26
35	2763.09 99961.82	2764.14 3617759.62	100038.19 3619141.43	25
36	2792.16 99961.01	2793.25 3580055.33	100039.00 3581451.68	24
37	2821.24 99960.19	2822.36 3543128.25	100039.82 3544539.15	23
38	2850.32 99959.36	2851.48 3506954.58	100040.65 3508380.03	22
39	2879.40 99958.53	2880.59 3471511.50	100041.48 3472951.50	21
40	2908.47 99957.69	2909.70 3436777.09	100042.32 3438231.63	20
41	2937.55 99956.84	2938.82 3402730.29	100043.17 3404199.39	19
42	2966.62 99955.98	2967.93 3369350.89	100044.03 3370834.53	18
43	2995.70 99955.11	2997.05 3336619.45	100044.90 3338117.63	17
44	3024.78 99954.24	3026.16 3304517.27	100045.78 3306030.00	16
45	3053.85 99953.36	3055.28 3273026.37	100046.67 3274553.65	15
46	3082.93 99952.47	3084.39 3242129.46	100047.56 3243671.29	14
47	3112.00 99951.57	3113.51 3211809.88	100048.46 3213366.26	13
48	3141.08 99950.66	3142.63 3182051.60	100049.37 3183622.52	12
49	3170.15 99949.74	3171.74 3152839.16	100050.29 3154424.63	11
50	3199.22 99948.81	3200.86 3124157.67	100051.22 3125757.70	10
51	3228.30 99947.88	3229.98 3095992.80	100052.15 3097607.37	9
52	3257.37 99946.94	3259.10 3068330.70	100053.09 3069959.82	8
53	3286.44 99945.99	3288.22 3041158.02	100054.05 3042801.69	7
54	3315.52 99945.03	3317.34 3014461.89	100055.01 3016120.10	6
55	3344.59 99944.06	3346.46 2988229.86	100055.98 2989902.63	5
56	3373.66 99943.08	3375.58 2962449.95	100056.96 2964137.26	4
57	3402.73 99942.09	3404.71 2937110.55	100057.95 2938812.41	3
58	3431.81 99941.09	3433.83 2912200.47	100058.94 2913916.88	2
59	3460.88 99940.09	3462.95 2887708.88	100059.94 2889439.84	1
60	3489.95 99939.08	3492.08 2863625.33	100060.95 2865370.83	0

CANON SIN VVM

2	Sinus		Tangens		Secans		
0	3489.95	99939.08	3492.08	2863625.33	100060.95	2865370.83	60
1	3519.02	99938.06	3521.20	2839939.69	100061.97	2841699.74	59
2	3548.09	99937.03	3550.33	2816642.18	100063.00	2818416.78	58
3	3577.16	99935.99	3579.45	2793723.33	100064.04	2795512.48	57
4	3606.23	99934.95	3608.58	2771173.99	100065.09	2772977.69	56
5	3635.30	99933.90	3637.71	2748985.28	100066.15	2750803.53	55
6	3664.37	99932.84	3666.83	2727148.61	100067.21	2728981.41	54
7	3693.44	99931.77	3695.96	2705655.68	100068.28	2707503.03	53
8	3722.51	99930.69	3725.09	2684498.43	100069.36	2686360.33	52
9	3751.58	99929.60	3754.22	2663669.04	100070.45	2665545.49	51
10	3780.65	99928.51	3783.35	2643159.96	100071.55	2645050.96	50
11	3809.71	99927.40	3812.48	2622963.84	100072.66	2624869.39	49
12	3838.78	99926.29	3841.61	2603073.58	100073.77	2604993.68	48
13	3867.85	99925.17	3870.74	2583482.27	100074.89	2585416.92	47
14	3896.91	99924.04	3899.88	2564183.23	100076.02	2566132.43	46
15	3925.98	99922.90	3929.01	2545169.96	100077.16	2547133.71	45
16	3955.05	99921.75	3958.14	2526436.15	100078.31	2528414.45	44
17	3984.11	99920.60	3987.28	2507975.68	100079.47	2509968.53	43
18	4013.18	99919.44	4016.41	2489782.62	100080.63	2491790.02	42
19	4042.24	99918.27	4045.55	2471851.19	100081.80	2473873.14	41
20	4071.31	99917.09	4074.69	2454175.78	100082.98	2456212.28	40
21	4100.37	99915.90	4103.83	2436750.95	100084.17	2438802.00	39
22	4129.44	99914.70	4132.96	2419571.40	100085.37	2421637.00	38
23	4158.50	99913.49	4162.10	2402631.99	100086.58	2404712.14	37
24	4187.57	99912.28	4191.24	2385927.72	100087.80	2388022.42	36
25	4216.63	99911.06	4220.38	2369453.72	100089.02	2371562.97	35
26	4245.69	99909.83	4249.52	2353205.25	100090.25	2355329.05	34
27	4274.75	99908.59	4278.66	2337177.70	100091.49	2339316.07	33
28	4303.82	99907.34	4307.81	2321366.65	100092.74	2323519.55	32
29	4332.88	99906.08	4336.95	2305767.67	100094.00	2307935.13	31
30	4361.94	99904.82	4366.09	2290376.55	100095.27	2292558.56	30

TANGENTIVM & SECANTIVM.

2	Sinus		Tangens		Secans		
30	4361.94	99904.82	4366.09	2290376.55	100095.27	2292558.56	30
31	4391.00	99903.55	4395.24	2275189.16	100096.55	2277385.72	29
32	4420.06	99902.27	4424.38	2260201.48	100097.83	2262412.59	28
33	4449.12	99900.98	4453.53	2245409.59	100099.12	2247635.25	27
34	4478.18	99899.68	4482.68	2230309.67	100100.42	2233049.89	26
35	4507.24	99898.37	4511.82	2216398.02	100101.73	2218652.78	25
36	4536.30	99897.05	4540.97	2202171.00	100103.05	2204440.32	24
37	4565.36	99895.73	4570.12	2188125.10	100104.38	2190408.97	23
38	4594.42	99894.40	4599.27	2174256.87	100105.71	2176555.29	22
39	4623.47	99893.06	4628.42	2160562.96	100107.05	2162875.93	21
40	4652.53	99891.71	4657.57	2147040.10	100108.40	2149367.63	20
41	4681.59	99890.35	4686.73	2133685.11	100109.76	2136027.19	19
42	4710.64	99888.98	4715.88	2120494.88	100111.13	2122851.51	18
43	4739.70	99887.61	4745.03	2107466.37	100112.51	2109837.55	17
44	4768.76	99886.23	4774.19	2094596.63	100113.90	2096982.36	16
45	4797.81	99884.84	4803.34	2081882.76	100115.30	2084283.05	15
46	4826.87	99883.44	4832.50	2069321.96	100116.70	2071736.80	14
47	4855.92	99882.03	4861.66	2056911.47	100118.11	2059340.86	13
48	4884.98	99880.61	4890.82	2044648.61	100119.53	2047092.55	12
49	4914.03	99879.18	4919.97	2032530.75	100120.96	2034989.25	11
50	4943.08	99877.75	4949.13	2020555.35	100122.40	2023028.40	10
51	4972.14	99876.31	4978.29	2008719.89	100123.85	2011207.50	9
52	5001.19	99874.86	5007.46	1997021.95	100125.30	1999524.11	8
53	5030.24	99873.40	5036.62	1985459.12	100126.76	1987975.84	7
54	5059.29	99871.93	5065.78	1974029.10	100128.23	1976560.36	6
55	5088.35	99870.45	5094.95	1962729.59	100129.71	1965275.41	5
56	5117.40	99868.97	5124.11	1951558.37	100131.20	1954118.74	4
57	5146.45	99867.48	5153.28	1940513.27	100132.70	1943088.20	3
58	5175.50	99865.98	5182.44	1929592.17	100134.20	1932181.65	2
59	5204.55	99864.47	5211.61	1918792.98	100135.71	1921397.01	1
60	5233.60	99862.95	5240.78	1908112.67	100137.23	1910712.26	0

CANON SINVM

3	Sinus		Tangens		Secans		
0	5233.60	99862.95	5240.78	1908113.67	100137.23	1910732.26	60
1	5262.64	99861.42	5269.95	1897552.26	100138.76	1900185.40	59
2	5291.69	99859.89	5299.12	1887106.80	100140.30	1889754.50	58
3	5320.74	99858.35	5328.29	1876775.39	100141.85	1879437.65	57
4	5349.79	99856.80	5357.46	1866556.18	100143.41	1869232.99	56
5	5378.83	99855.24	5386.63	1856447.34	100144.98	1859138.71	55
6	5407.88	99853.67	5415.81	1846447.09	100146.55	1849153.01	54
7	5436.93	99852.09	5444.98	1836553.70	100148.13	1839274.17	53
8	5465.97	99850.50	5474.16	1826765.44	100149.72	1829500.48	52
9	5495.02	99848.91	5503.33	1817080.67	100151.32	1819830.26	51
10	5524.06	99847.31	5532.51	1807497.74	100152.93	1810261.88	50
11	5553.11	99845.70	5561.69	1798015.05	100154.55	1800793.75	49
12	5582.15	99844.08	5590.87	1788631.04	100156.17	1791424.29	48
13	5611.19	99842.45	5620.05	1779344.17	100157.80	1782151.98	47
14	5640.24	99840.81	5649.23	1770152.94	100159.44	1772975.31	46
15	5669.28	99839.16	5678.41	1761055.88	100161.09	1763892.80	45
16	5698.32	99837.51	5707.59	1752051.55	100162.75	1754903.03	44
17	5727.36	99835.85	5736.78	1743138.54	100164.42	1746004.57	43
18	5756.40	99834.18	5765.96	1734315.46	100166.10	1737196.05	42
19	5785.44	99832.50	5795.15	1725580.95	100167.78	1728476.10	41
20	5814.48	99830.81	5824.34	1716933.69	100169.47	1719843.40	40
21	5843.52	99829.11	5853.52	1708372.38	100171.17	1711296.64	39
22	5872.56	99827.41	5882.71	1699895.74	100172.88	1702834.56	38
23	5901.60	99825.70	5911.90	1691502.51	100174.60	1694455.89	37
24	5930.64	99823.98	5941.09	1683191.48	100176.33	1686159.41	36
25	5959.67	99822.25	5970.29	1674961.44	100178.07	1677943.92	35
26	5988.71	99820.51	5999.48	1666811.20	100179.81	1669808.25	34
27	6017.75	99818.76	6028.67	1658739.62	100181.56	1661751.22	33
28	6046.78	99817.01	6057.87	1650745.55	100183.32	1653771.71	32
29	6075.82	99815.25	6087.06	1642827.89	100185.09	1645868.61	31
30	6104.85	99813.48	6116.26	1634985.55	100186.87	1638040.82	30

TANGENTIVM & SECANTIVM

3	Sinus	Tangens	Secans	
30	6104.85	99813.48	6116.26	1634985.55
31	6133.89	99811.70	6145.46	1627217.44
32	6162.92	99809.91	6174.66	1619522.53
33	6191.96	99808.11	6203.86	1611899.99
34	6220.99	99806.30	6233.06	1604348.19
35	6250.02	99804.49	6262.26	1596866.74
36	6279.07	99802.67	6291.47	1589454.48
37	6308.08	99800.84	6320.67	1582110.45
38	6337.11	99799.00	6349.88	1574833.71
39	6366.14	99797.15	6379.08	1567623.33
40	6395.17	99795.29	6408.29	1560478.41
41	6424.20	99793.43	6437.50	1553398.06
42	6453.23	99791.56	6466.71	1546381.41
43	6482.26	99789.68	6495.92	1539427.60
44	6511.29	99787.79	6525.13	1532535.80
45	6540.31	99785.89	6554.35	1525705.17
46	6569.34	99783.98	6583.56	1518934.90
47	6598.36	99782.06	6612.78	1512224.20
48	6627.39	99780.14	6641.99	1505572.27
49	6656.41	99778.21	6671.21	1498978.36
50	6685.44	99776.27	6700.43	1492441.70
51	6714.46	99774.32	6729.65	1485961.55
52	6743.48	99772.36	6758.87	1479537.18
53	6772.51	99770.39	6788.09	1473167.87
54	6801.53	99768.42	6817.32	1466852.92
55	6830.55	99766.44	6846.54	1460591.63
56	6859.57	99764.45	6875.77	1454383.32
57	6888.59	99762.45	6904.99	1448227.32
58	6917.61	99760.44	6934.22	1442122.97
59	6946.63	99758.42	6963.45	1436069.61
60	6975.65	99756.40	6992.68	1430066.63
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CANON SINVVVM

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TANGENTIVM & SECANTIVM.

4	Sinus	Tangens	Secans
30	7845.91	99691.73	7870.17
31	7874.91	99689.44	1270620.47
32	7903.91	99687.15	7899.44
33	7932.90	99684.85	1265912.46
34	7961.90	99682.54	7928.71
35	7990.90	99680.22	1261239.00
36	8019.89	99677.89	7957.98
37	8048.89	99675.55	1256599.71
38	8077.88	99673.20	7987.26
39	8106.87	99670.85	1251994.20
40	8135.87	99668.49	8016.53
41	8164.86	99666.12	1247422.12
42	8193.85	99663.74	8045.81
43	8222.84	99661.35	1242883.10
44	8251.83	99658.95	8075.09
45	8280.82	99656.55	1238376.79
46	8309.81	99654.14	8104.37
47	8338.80	99651.72	1233902.82
48	8367.78	99649.29	8133.65
49	8396.77	99646.85	1229460.85
50	8425.76	99644.40	8162.93
51	8454.74	99641.94	1225050.55
52	8483.73	99639.48	8192.21
53	8512.71	99637.01	1220671.56
54	8541.69	99634.53	8221.50
55	8570.67	99632.04	1216323.56
56	8599.66	99629.54	8250.78
57	8628.64	99627.03	1212006.22
58	8657.62	99624.52	8280.07
59	8686.60	99622.00	1207719.22
60	8715.57	99619.47	8309.36
			1203462.23
			8338.65
			1199234.95
			8367.94
			1195037.05
			8397.23
			1190868.24
			8426.53
			1186728.21
			8455.83
			1182616.67
			8485.12
			1178533.31
			8514.42
			1174477.86
			8543.72
			1170450.03
			8573.02
			1166449.53
			8602.33
			1162476.08
			8631.63
			1158529.42
			8660.94
			1154609.27
			8690.25
			1150715.36
			8719.56
			1146847.43
			8748.87
			1143005.23
			100309.22
			1274549.48
			100311.52
			1269856.04
			100313.83
			1265197.15
			100316.15
			1260572.42
			100318.48
			1255981.48
			100320.81
			1251423.97
			100323.15
			1246899.52
			100325.50
			1242407.77
			100327.86
			1237948.37
			100330.23
			1233520.97
			100332.61
			1229125.23
			100335.00
			1224760.82
			100337.40
			1220427.39
			100339.80
			1216124.62
			100342.21
			1211852.18
			100344.63
			1207609.76
			100347.06
			1203397.05
			100349.50
			1199213.72
			100351.95
			1195059.48
			100354.41
			1190934.02
			100356.87
			1186837.05
			100359.34
			1182768.27
			100361.82
			1178727.39
			100364.31
			1174714.12
			100366.81
			1170728.19
			100369.32
			1166769.32
			100371.84
			1162837.23
			100374.36
			1158931.65
			100376.89
			1155052.31
			100379.43
			1151198.96
			100381.98
			1147371.32

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CANON SIN VVM

5	Sinus	Tangens	Secans	
0	8715.57	99619.47	8748.87	1143005.23
1	8744.55	99616.93	8778.18	1139188.49
2	8773.53	99614.38	8807.49	1135396.96
3	8802.51	99611.82	8836.81	1131630.40
4	8831.48	99609.26	8866.12	1127888.55
5	8860.46	99606.69	8895.44	1124171.17
6	8889.43	99604.11	8924.76	1120478.03
7	8918.40	99601.52	8954.08	1116808.88
8	8947.38	99598.92	8983.41	1113163.50
9	8976.35	99596.31	9012.73	1109541.64
10	9005.32	99593.69	9042.06	1105943.10
11	9034.29	99591.07	9071.38	1102367.63
12	9063.26	99588.44	9100.71	1098815.01
13	9092.23	99585.80	9130.04	1095285.04
14	9121.19	99583.15	9159.38	1091777.49
15	9150.16	99580.49	9188.71	1088292.14
16	9179.13	99577.82	9218.04	1084828.80
17	9208.09	99575.15	9247.38	1081387.24
18	9237.06	99572.47	9276.72	1077967.27
19	9266.02	99569.78	9306.06	1074568.68
20	9294.99	99567.08	9335.40	1071191.26
21	9323.95	99564.37	9364.74	1067834.84
22	9352.91	99561.65	9394.09	1064499.19
23	9381.87	99558.92	9423.44	1061184.14
24	9410.83	99556.19	9452.78	1057889.50
25	9439.79	99553.45	9482.13	1054615.07
26	9468.75	99550.70	9511.48	1051360.67
27	9497.71	99547.94	9540.84	1048126.11
28	9526.66	99545.17	9570.19	1044911.22
29	9555.62	99542.40	9599.55	1041715.81
30	9584.58	99539.62	9628.90	1038539.71
				100381.98
				1147371.32
				100384.54
				1143569.16
				100387.11
				1139792.20
				100389.69
				1136040.21
				100392.28
				1132312.93
				100394.87
				1128610.13
				100397.47
				1124931.56
				100400.08
				1121276.99
				100402.70
				1117646.17
				100405.33
				1114038.90
				100407.97
				1110454.92
				100410.61
				1106894.03
				100413.26
				1103355.59
				100415.92
				1099840.99
				100418.59
				1096347.61
				100421.27
				1092876.84
				100423.96
				1089428.07
				100426.66
				1086001.09
				100429.37
				1082595.69
				100432.08
				1079211.68
				100434.80
				1075848.84
				100437.53
				1072506.99
				100440.27
				1069185.92
				100443.02
				1065885.45
				100445.78
				1062605.38
				100448.55
				1059345.53
				100451.33
				1056105.70
				100454.11
				1052885.72
				100456.90
				1049685.41
				100459.70
				1046504.58
				100462.51
				1043343.05

TANGENTIVM & SECANTIVM.

5	Sinus	Tangens	Secans				
30	9584.58	99539.62	9628.90	1038539.71	100462.51	1043343.05	30
31	9613.53	99536.83	9658.26	1035382.74	100465.33	1040200.66	29
32	9642.48	99534.03	9687.63	1032244.73	100468.16	1037077.23	28
33	9671.44	99531.22	9716.99	1029125.51	100470.99	1033972.59	27
34	9700.39	99528.40	9746.35	1026024.90	100473.83	1030886.56	26
35	9729.34	99525.57	9775.72	1022942.76	100476.68	1027818.99	25
36	9758.29	99522.74	9805.09	1019878.90	100479.54	1024769.71	24
37	9787.24	99519.90	9834.46	1016833.16	100482.41	1021738.55	23
38	9816.19	99517.05	9863.83	1013805.39	100485.29	1018725.36	22
39	9845.14	99514.19	9893.20	1010795.42	100488.18	1015729.98	21
40	9874.08	99511.32	9922.57	1007803.11	100491.08	1012752.24	20
41	9903.03	99508.44	9951.95	1004828.28	100493.99	1009792.00	19
42	9931.97	99505.55	9981.33	1001870.80	100496.90	1006849.09	18
43	9960.92	99502.66	10010.71	998930.50	100499.82	1003923.38	17
44	9989.86	99499.76	10040.09	996007.24	100502.75	1001014.70	16
45	10018.81	99496.85	10069.47	993100.88	100505.69	998122.91	15
46	10047.75	99493.93	10098.85	990211.25	100508.64	995247.87	14
47	10076.69	99491.00	10128.24	987338.23	100511.60	992389.43	13
48	10105.63	99488.06	10157.63	984481.66	100514.57	989547.44	12
49	10134.57	99485.12	10187.02	981641.40	100517.54	986721.76	11
50	10163.51	99482.17	10216.41	978817.32	100520.52	983912.27	10
51	10192.45	99479.21	10245.80	976009.27	100523.51	981118.80	9
52	10221.38	99476.24	10275.20	973217.13	100526.51	978341.24	8
53	10250.32	99473.26	10304.60	970440.75	100529.52	975579.44	7
54	10279.25	99470.27	10334.00	967680.00	100532.54	972833.27	6
55	10308.19	99467.28	10363.40	964934.75	100535.57	970102.60	5
56	10337.12	99464.28	10392.80	962204.86	100538.60	967387.30	4
57	10366.05	99461.27	10422.20	959490.22	100541.64	964687.24	3
58	10394.99	99458.25	10451.60	956790.68	100544.69	962002.29	2
59	10423.92	99455.22	10481.01	954106.13	100547.75	959332.33	1
60	10452.85	99452.18	10510.42	951436.45	100550.82	956677.22	0
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CANON SINVVVM

6	Sinus	Tangens	Secans
0	10452.85	99452.18	10510.42
1	10481.78	99449.14	10539.83
2	10510.70	99446.09	10569.24
3	10539.63	99443.03	10598.66
4	10568.55	99439.96	10628.08
5	10597.48	99436.88	10657.50
6	10626.41	99433.79	10686.92
7	10655.33	99430.69	10716.34
8	10684.25	99427.59	10745.76
9	10713.18	99424.48	10775.19
10	10742.10	99421.36	10804.62
11	10771.02	99418.23	10834.05
12	10799.94	99415.09	10863.48
13	10828.85	99411.94	10892.91
14	10857.77	99408.79	10922.34
15	10886.69	99405.63	10951.78
16	10915.60	99402.46	10981.22
17	10944.52	99399.28	11010.66
18	10973.43	99396.09	11040.10
19	11002.34	99392.89	11069.54
20	11031.26	99389.69	11098.99
21	11060.17	99386.48	11128.44
22	11089.08	99383.26	11157.89
23	11117.99	99380.03	11187.34
24	11146.89	99376.79	11216.79
25	11175.80	99373.54	11246.25
26	11204.71	99370.28	11275.71
27	11233.61	99367.02	11305.17
28	11262.52	99363.75	11334.63
29	11291.42	99360.47	11364.09
30	11320.32	99357.18	11393.56
			951436.45
			948781.49
			946141.16
			943515.31
			940903.84
			938306.63
			935723.55
			933154.50
			930599.36
			928058.02
			925530.35
			923016.27
			920515.64
			918028.38
			915554.36
			913093.48
			910645.64
			908210.74
			905788.67
			903379.33
			900982.61
			898598.43
			896226.68
			893867.26
			891502.08
			889185.05
			886862.06
			884551.03
			882251.86
			879964.46
			877688.74
			100550.82
			100553.90
			100556.99
			100560.09
			100563.20
			100566.31
			100569.43
			100572.56
			100575.70
			100578.85
			100582.01
			100585.18
			100588.35
			100591.53
			100594.72
			100597.92
			100601.13
			100604.35
			100607.58
			100610.81
			100614.05
			100617.30
			100620.56
			100623.83
			100627.11
			100630.40
			100633.70
			100637.01
			100640.32
			100643.64
			100646.97
			951411.10
			948799.84
			946202.96
			943620.33
			941051.84
			938497.38
			935956.82
			933430.06
			930916.99
			928417.49
			925931.45
			923458.77
			920999.34
			918553.05
			916119.80
			913699.49
			911292.00
			908897.25

TANGENTIVM & SECANTIVM.

6	Sinus	Tangens	Secans	
30	11320.32	99357.18	11393.56	877688.74
31	11349.22	99353.88	11423.03	875424.61
32	11378.12	99350.58	11452.50	873171.98
33	11407.02	99347.27	11481.97	870930.77
34	11435.92	99343.95	11511.44	868700.88
35	11464.82	99340.62	11540.91	866482.23
36	11493.71	99337.28	11570.39	864274.75
37	11522.61	99333.93	11599.87	862078.33
38	11551.51	99330.57	11629.35	859892.90
39	11580.40	99327.20	11658.83	857718.38
40	11609.29	99323.83	11688.31	855554.68
41	11638.18	99320.45	11717.80	853401.72
42	11667.07	99317.06	11747.29	851259.43
43	11695.96	99313.66	11776.78	849127.72
44	11724.85	99310.25	11806.28	847006.51
45	11753.74	99306.84	11835.78	844895.73
46	11782.63	99303.42	11865.28	842795.31
47	11811.51	99299.99	11894.78	840705.15
48	11840.40	99296.55	11924.28	838625.19
49	11869.28	99293.10	11953.78	836555.36
50	11898.16	99289.64	11983.28	834495.57
51	11927.04	99286.17	12012.79	832445.77
52	11955.93	99282.70	12042.30	830405.86
53	11984.81	99279.22	12071.81	828375.79
54	12013.68	99275.73	12101.32	826355.47
55	12042.56	99272.23	12130.84	824344.85
56	12071.44	99268.72	12160.36	822343.84
57	12100.31	99265.21	12189.88	820352.39
58	12129.19	99261.69	12219.40	818370.41
59	12158.06	99258.16	12248.93	816397.86
60	12186.93	99254.62	12278.46	814434.64

CANON SINVVVM

7	Sinus		Tangens		Secans		
0	12186.93	99254.62	12278.46	81443.64	100750.99	820550.90	60
1	12215.81	99251.07	12307.99	812480.71	100754.59	818611.57	59
2	12244.68	99247.51	12337.52	810535.99	100758.20	816681.45	58
3	12273.55	99243.94	12367.05	808600.42	100761.82	814760.48	57
4	12302.41	99240.36	12396.58	806673.94	100765.45	812848.60	56
5	12331.28	99236.78	12426.12	804756.47	100769.09	810945.73	55
6	12360.15	99233.19	12455.66	802847.96	100772.74	809051.82	54
7	12389.01	99229.59	12485.20	800948.35	100776.39	807166.81	53
8	12417.88	99225.98	12514.74	799057.56	100780.05	805290.62	52
9	12446.74	99222.36	12544.29	797175.55	100783.72	803423.21	51
10	12475.60	99218.74	12573.84	795302.24	100787.40	801564.50	50
11	12504.46	99215.11	12603.39	793437.58	100791.09	799714.45	49
12	12533.32	99211.47	12632.94	791581.51	100794.79	797872.98	48
13	12562.18	99207.82	12662.49	789733.96	100798.50	796040.03	47
14	12591.04	99204.16	12692.05	787894.89	100802.22	794215.66	46
15	12619.90	99200.49	12721.61	786064.23	100805.95	792399.50	45
16	12648.75	99196.81	12751.17	784241.91	100809.69	790591.79	44
17	12677.61	99193.13	12780.73	782427.90	100813.43	788792.38	43
18	12706.46	99189.44	12810.29	780622.12	100817.18	787001.20	42
19	12735.31	99185.74	12839.86	778824.53	100820.94	785218.21	41
20	12764.16	99182.03	12869.43	777035.06	100824.71	783443.35	40
21	12793.01	99178.31	12899.00	775253.66	100828.49	781676.56	39
22	12821.86	99174.59	12928.57	773480.28	100832.28	779917.78	38
23	12850.71	99170.86	12958.15	771714.86	100836.07	778166.97	37
24	12879.56	99167.12	12987.73	769957.35	100839.88	776424.06	36
25	12908.41	99163.37	13017.31	768207.69	100843.70	774689.01	35
26	12937.25	99159.61	13046.89	766465.84	100847.52	772961.76	34
27	12966.09	99155.84	13076.48	764731.74	100851.35	771242.27	33
28	12994.94	99152.06	13106.07	763005.33	100855.19	769530.47	32
29	13023.78	99148.28	13135.66	761286.57	100859.04	767826.31	31
30	13052.62	99144.49	13165.25	759575.41	100862.90	766129.76	30

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TANGENTIVM & SECANTIVM.

7	Simus		Tangens		Secans		
30	13052.62	99144.49	13165.25	759575.41	100862.90	766129.76	30
31	13081.46	99140.69	13194.84	757871.79	100866.77	764440.75	29
32	13110.30	99136.88	13224.44	756175.67	100870.65	762759.23	28
33	13139.13	99133.06	13254.04	754486.99	100874.53	761085.16	27
34	13167.97	99129.23	13283.64	752805.71	100878.42	759418.49	26
35	13196.81	99125.39	13313.24	751131.78	100882.32	757759.16	25
36	13225.64	99121.55	13342.85	749465.14	100886.23	756107.13	24
37	13254.47	99117.70	13372.46	747805.76	100890.15	754462.36	23
38	13283.30	99113.84	13402.07	746153.57	100894.08	752824.78	22
39	13312.13	99109.97	13431.68	744508.55	100898.02	751194.37	21
40	13340.96	99106.09	13461.29	742870.64	100901.97	749571.06	20
41	13369.79	99102.21	13490.91	741239.78	100905.92	747954.82	19
42	13398.62	99098.32	13520.53	739615.95	100909.88	746345.60	18
43	13427.44	99094.42	13550.15	737999.09	100913.85	744743.35	17
44	13456.27	99090.51	13579.77	736389.16	100917.83	743148.03	16
45	13485.09	99086.59	13609.40	734786.10	100921.82	741559.59	15
46	13513.92	99082.66	13639.03	733189.89	100925.82	739977.98	14
47	13542.74	99078.72	13668.66	731600.47	100929.83	738403.18	13
48	13571.56	99074.78	13698.29	730017.80	100933.85	736835.12	12
49	13600.38	99070.83	13727.93	728441.84	100937.88	735273.77	11
50	13629.19	99066.87	13757.57	726872.55	100941.92	733719.09	10
51	13658.01	99062.90	13787.21	725309.87	100945.96	732171.02	9
52	13686.83	99058.92	13816.85	723753.78	100950.01	730629.54	8
53	13715.64	99054.93	13846.50	722204.22	100954.07	729094.60	7
54	13744.45	99050.94	13876.15	720661.16	100958.14	727566.16	6
55	13773.27	99046.94	13905.80	719124.56	100962.22	726044.17	5
56	13802.08	99042.93	13935.45	717594.37	100966.31	724528.59	4
57	13830.89	99038.91	13965.10	716070.56	100970.41	723019.40	3
58	13859.70	99034.88	13994.76	714553.08	100974.52	721516.53	2
59	13888.50	99030.84	14024.42	713041.90	100978.64	720019.96	1
60	13917.31	99026.80	14054.08	711536.97	100982.76	718529.65	0
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CANON SINVM

8	Sinus	Tangens	Secans	
0	13917.31	99026.80	14054.08	711536.97
1	13946.12	99022.75	14083.74	710038.26
2	13974.92	99018.69	14113.41	708545.73
3	14003.72	99014.62	14143.08	707059.34
4	14032.52	99010.54	14172.75	705579.05
5	14061.32	99006.45	14202.43	704104.82
6	14090.12	99002.36	14232.11	702636.62
7	14118.92	98998.26	14261.79	701174.41
8	14147.72	98994.15	14291.47	699718.06
9	14176.51	98990.03	14321.15	698267.81
10	14205.31	98985.90	14350.84	696823.35
11	14234.10	98981.76	14380.53	695384.73
12	14262.89	98977.62	14410.22	693951.92
13	14291.68	98973.47	14439.91	692524.89
14	14320.47	98969.31	14469.61	691103.59
15	14349.26	98965.14	14499.31	689687.99
16	14378.05	98960.96	14529.01	688278.07
17	14406.84	98956.77	14558.71	686873.78
18	14435.62	98952.57	14588.42	685475.08
19	14464.40	98948.37	14618.13	684081.96
20	14493.19	98944.16	14647.84	682694.37
21	14521.97	98939.94	14677.55	681312.27
22	14550.75	98935.71	14707.27	679935.65
23	14579.53	98931.47	14736.99	678564.46
24	14608.30	98927.23	14766.71	677198.67
25	14637.08	98922.98	14796.44	675838.26
26	14665.85	98918.72	14826.17	674483.18
27	14694.63	98914.45	14855.90	673133.41
28	14723.40	98910.17	14885.63	671788.91
29	14752.17	98905.88	14915.36	670449.66
30	14780.94	98901.58	14945.10	669115.62
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TANGENTIVM & SECANTIVM.

8	Sinus	Tangens	Secans				
30	14780.94	98901.58	14945.10	669115.62	101110.61	676546.91	30
31	14809.71	98897.28	14974.84	667786.77	101115.01	675232.68	29
32	14838.48	98892.97	15004.58	666463.07	101119.42	673923.60	28
33	14867.24	98888.65	15034.33	665144.49	101123.84	672619.65	27
34	14896.01	98884.32	15064.08	663831.00	101128.27	671320.79	26
35	14924.77	98879.98	15093.83	662522.58	101132.71	670026.99	25
36	14953.53	98875.63	15123.58	661219.19	101137.15	668738.22	24
37	14982.30	98871.28	15153.33	659920.80	101141.60	667454.46	23
38	15011.06	98866.92	15183.09	658627.39	101146.06	666175.68	22
39	15039.81	98862.55	15212.85	657338.92	101150.53	664901.84	21
40	15068.57	98858.17	15242.61	656055.38	101155.01	663632.93	20
41	15097.33	98853.78	15272.38	654776.72	101159.50	662368.90	19
42	15126.08	98849.38	15302.15	653502.93	101164.00	661109.73	18
43	15154.84	98844.98	15331.92	652233.96	101168.51	659855.40	17
44	15183.59	98840.57	15361.89	650969.81	101173.03	658605.87	16
45	15212.34	98836.15	15391.47	649710.43	101177.56	657361.12	15
46	15241.09	98831.72	15421.25	648455.81	101182.09	656121.13	14
47	15269.84	98827.28	15451.03	647205.91	101186.63	654885.86	13
48	15298.58	98822.83	15480.82	645960.70	101191.18	653655.28	12
49	15327.33	98818.38	15510.61	644720.17	101195.74	652429.38	11
50	15356.07	98813.92	15540.40	643484.28	101200.31	651208.12	10
51	15384.82	98809.45	15570.19	642253.01	101204.89	649991.48	9
52	15413.56	98804.97	15599.98	641026.33	101209.48	648779.44	8
53	15442.30	98800.48	15629.78	639804.22	101214.08	647571.95	7
54	15471.04	98795.98	15659.58	638586.65	101218.69	646369.01	6
55	15499.78	98791.48	15689.38	637373.59	101223.31	645170.59	5
56	15528.51	98786.97	15719.19	636165.02	101227.93	643976.66	4
57	15557.25	98782.45	15749.00	634960.92	101232.56	642787.19	3
58	15585.98	98777.92	15778.81	633761.26	101237.20	641602.16	2
59	15614.72	98773.38	15808.62	632566.01	101241.85	640421.54	1
60	15643.45	98768.83	15838.44	631375.15	101246.51	639245.32	0

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CANON SIN VVM

9	Sinus	Tangens	Secans	
0	15643.45	98768.83	15838.44	631375.15
1	15672.18	98764.28	15868.26	630188.66
2	15700.91	98759.72	15898.08	629006.51
3	15729.63	98755.15	15927.91	627828.68
4	15758.36	98750.57	15957.74	626655.14
5	15787.08	98745.98	15987.57	625485.88
6	15815.81	98741.38	16017.40	624320.86
7	15844.53	98736.77	16047.24	623160.07
8	15873.25	98732.16	16077.08	622003.47
9	15901.97	98727.54	16106.92	620851.06
10	15930.69	98722.91	16136.77	619702.79
11	15959.40	98718.27	16166.62	618558.67
12	15988.12	98713.62	16196.47	617418.65
13	16016.83	98708.97	16226.32	616282.72
14	16045.55	98704.31	16256.17	615150.85
15	16074.26	98699.64	16286.03	614023.03
16	16102.97	98694.96	16315.89	612899.23
17	16131.67	98690.27	16345.76	611779.43
18	16160.38	98685.57	16375.63	610663.60
19	16189.09	98680.86	16405.50	609551.74
20	16217.79	98676.15	16435.37	608443.81
21	16246.50	98671.43	16465.25	607339.79
22	16275.20	98666.70	16495.13	606239.67
23	16303.90	98661.96	16525.01	605143.43
24	16332.60	98657.21	16554.89	604051.03
25	16361.29	98652.46	16584.78	602962.47
26	16389.99	98647.70	16614.67	601877.72
27	16418.68	98642.93	16644.56	600796.76
28	16447.38	98638.15	16674.46	599719.57
29	16476.07	98633.36	16704.36	598646.14
30	16504.76	98628.56	16734.26	597576.44
				101246.51
				101251.18
				101255.86
				101260.55
				101265.25
				101269.96
				101274.67
				101279.39
				101284.12
				101288.86
				101293.61
				101298.37
				101303.14
				101307.92
				101312.71
				101317.51
				101322.31
				101327.12
				101331.94
				101336.77
				101341.61
				101346.46
				101351.32
				101356.19
				101361.07
				101365.95
				101370.84
				101375.74
				101380.65
				101385.57
				101390.50

TANGENTIVM & SECANTIVM.

9	Sinus	Tangens	Secans	
30	16504.76	98628.56	16734.26	597576.44
31	16533.45	98623.75	16764.16	596510.45
32	16562.14	98618.94	16794.07	595448.15
33	16590.82	98614.12	16823.98	594389.52
34	16619.51	98609.29	16853.89	593334.55
35	16648.19	98604.45	16883.81	592283.22
36	16676.87	98599.60	16913.73	591235.50
37	16705.55	98594.74	16943.65	590191.38
38	16734.23	98589.88	16973.58	589150.84
39	16762.91	98585.01	17003.51	588113.86
40	16791.59	98580.13	17033.44	587080.42
41	16820.26	98575.24	17063.37	586050.51
42	16848.94	98570.34	17093.31	585024.10
43	16877.61	98565.44	17123.25	584001.17
44	16906.28	98560.53	17153.19	582981.72
45	16934.95	98555.61	17183.14	581965.72
46	16963.62	98550.68	17213.09	580953.15
47	16992.28	98545.74	17243.04	579944.00
48	17020.95	98540.79	17273.00	578938.25
49	17049.61	98535.83	17302.96	577935.88
50	17078.28	98530.87	17332.92	576936.88
51	17106.94	98525.90	17362.88	575941.22
52	17135.60	98520.92	17392.85	574948.89
53	17164.25	98515.93	17422.82	573959.88
54	17192.91	98510.93	17452.79	572974.16
55	17221.56	98505.92	17482.77	571991.73
56	17250.22	98500.91	17512.75	571012.56
57	17278.87	98495.89	17542.73	570036.63
58	17307.52	98490.86	17572.72	569063.94
59	17336.17	98485.82	17602.71	568094.46
60	17364.82	98480.77	17632.70	567128.18
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CANON SINVM

10	Sinus		Tangens		Secans		
0	17364.82	98480.77	17632.70	567128.18	101542.67	575877.05	60
1	17393.46	98475.71	17662.69	566165.09	101547.88	574928.61	59
2	17422.11	98470.65	17692.69	565205.16	101553.10	573983.33	58
3	17450.75	98465.58	17722.69	564248.38	101558.33	573041.21	57
4	17479.39	98460.50	17752.69	563294.74	101563.57	572102.23	56
5	17508.03	98455.41	17782.70	562344.21	101568.82	571166.36	55
6	17536.67	98450.31	17812.71	561396.80	101574.08	570233.60	54
7	17565.31	98445.21	17842.72	560452.47	101579.35	569303.93	53
8	17593.95	98440.10	17872.74	559511.21	101584.63	568377.34	52
9	17622.58	98434.98	17902.76	558573.02	101589.92	567453.80	51
10	17651.21	98429.85	17932.78	557637.86	101595.21	566533.31	50
11	17679.84	98424.71	17962.81	556705.74	101600.51	565615.84	49
12	17708.47	98419.56	17992.84	555776.63	101605.82	564701.40	48
13	17737.10	98414.40	18022.87	554850.52	101611.14	563789.95	47
14	17765.73	98409.24	18052.91	553927.40	101616.47	562881.48	46
15	17794.35	98404.07	18082.95	553007.24	101621.81	561975.99	45
16	17822.98	98398.89	18112.99	552090.05	101627.16	561073.45	44
17	17851.60	98393.70	18143.03	551175.79	101632.52	560173.86	43
18	17880.22	98388.50	18173.08	550264.46	101637.89	559277.19	42
19	17908.84	98383.29	18203.13	549356.04	101643.27	558383.43	41
20	17937.46	98378.08	18233.18	548450.52	101648.66	557492.58	40
21	17966.07	98372.86	18263.24	547547.88	101654.06	556604.60	39
22	17994.69	98367.63	18293.30	546648.12	101659.46	555719.50	38
23	18023.30	98362.39	18323.36	545751.21	101664.87	554837.26	37
24	18051.91	98357.14	18353.43	544857.15	101670.29	553957.86	36
25	18080.52	98351.89	18383.50	543965.92	101675.72	553081.29	35
26	18109.13	98346.63	18413.57	543077.50	101681.16	552207.54	34
27	18137.74	98341.36	18443.65	542191.88	101686.61	551336.59	33
28	18166.35	98336.08	18473.73	541309.06	101692.07	550468.43	32
29	18194.95	98330.79	18503.81	540429.01	101697.54	549603.05	31
30	18223.55	98325.49	18533.90	539551.72	101703.02	548740.41	30

TANGENTIVM & SECANTIVM.

10	Sinus	Tangens	Secans				
30	18223.55	98325.49	18533.90	539551.72	101703.02	548740.43	30
31	18252.15	98320.18	18563.99	538677.18	101708.51	547880.55	29
32	18280.75	98314.87	18594.08	537805.38	101714.01	547023.42	28
33	18309.35	98309.55	18624.18	536936.30	101719.52	546169.01	27
34	18337.95	98304.22	18654.28	536069.93	101725.04	545317.31	26
35	18366.54	98298.88	18684.38	535206.26	101730.56	544468.31	25
36	18395.13	98293.53	18714.49	534345.27	101736.09	543621.99	24
37	18423.73	98288.17	18744.60	533486.96	101741.63	542778.35	23
38	18452.32	98282.81	18774.71	532631.31	101747.18	541937.37	22
39	18480.91	98277.44	18804.83	531778.30	101752.74	541099.03	21
40	18509.49	98272.06	18834.95	530927.93	101758.31	540263.33	20
41	18538.08	98266.67	18865.07	530080.18	101763.89	539430.26	19
42	18566.66	98261.27	18895.20	529235.05	101769.48	538599.79	18
43	18595.24	98255.87	18925.33	528392.51	101775.08	537751.92	17
44	18623.82	98250.46	18955.46	527552.55	101780.69	536946.64	16
45	18652.40	98245.04	18985.59	526715.17	101786.31	536123.93	15
46	18680.98	98239.61	19015.73	525880.35	101791.94	535303.79	14
47	18709.56	98234.17	19045.87	525048.09	101797.58	534486.20	13
48	18738.13	98228.72	19076.02	524218.36	101803.22	533671.14	12
49	18766.70	98223.27	19106.17	523391.16	101808.87	532858.61	11
50	18795.27	98217.81	19136.32	522566.47	101814.53	532048.60	10
51	18823.84	98212.34	19166.48	521744.28	101820.20	531241.09	9
52	18852.41	98206.86	19196.64	520924.59	101825.88	530436.08	8
53	18880.98	98201.37	19226.80	520107.38	101831.57	529633.54	7
54	18909.54	98195.87	19256.96	519292.64	101837.27	528833.47	6
55	18938.11	98190.36	19287.13	518480.35	101842.98	528035.87	5
56	18966.67	98184.85	19317.30	517670.51	101848.70	527240.70	4
57	18995.23	98179.33	19347.48	516863.11	101854.43	526447.98	3
58	19023.79	98173.80	19377.66	516058.13	101860.17	525657.68	2
59	19052.34	98168.26	19407.84	515255.57	101865.92	524869.79	1
60	19080.90	98162.71	19438.03	514455.40	101871.68	524084.31	0

CANON SIN VVM

II	Sinus	Tangens	Secans				
0	19080.90	98162.71	19438.03	514455.40	101871.68	524084.31	60
1	19109.45	98157.16	19468.22	513657.63	101877.44	523301.21	59
2	19138.00	98151.60	19498.41	512862.24	101883.21	522520.50	58
3	19166.55	98146.03	19528.61	512069.21	101888.99	521742.16	57
4	19195.10	98140.45	19558.81	511278.55	101894.78	520966.18	56
5	19223.65	98134.86	19589.01	510490.24	101900.58	520192.54	55
6	19252.20	98129.26	19619.22	509704.26	101906.39	519421.25	54
7	19280.74	98123.66	19649.43	508920.61	101912.21	518652.28	53
8	19309.28	98118.05	19679.64	508139.28	101918.04	517885.63	52
9	19337.82	98112.43	19709.86	507360.25	101923.88	517121.28	51
10	19366.36	98106.80	19740.08	506583.52	101929.73	516359.24	50
11	19394.90	98101.16	19770.30	505809.07	101935.59	515599.48	49
12	19423.44	98095.51	19800.53	505036.90	101941.46	514841.99	48
13	19451.97	98089.86	19830.76	504267.00	101947.34	514086.77	47
14	19480.50	98084.20	19861.00	503499.35	101953.23	513333.81	46
15	19509.03	98078.53	19891.24	502733.95	101959.12	512583.09	45
16	19537.56	98072.85	19921.48	501970.78	101965.02	511834.61	44
17	19566.09	98067.16	19951.72	501209.84	101970.93	511088.35	43
18	19594.61	98061.46	19981.97	500451.11	101976.85	510344.31	42
19	19623.14	98055.76	20012.22	499694.59	101982.78	509602.48	41
20	19651.66	98050.05	20042.48	498940.27	101988.72	508862.84	40
21	19680.18	98044.33	20072.74	498188.13	101994.67	508125.39	39
22	19708.70	98038.60	20103.00	497438.17	102000.63	507390.12	38
23	19737.22	98032.86	20133.27	496690.37	102006.60	506657.01	37
24	19765.73	98027.11	20163.54	495944.74	102012.58	505926.06	36
25	19794.25	98021.36	20193.81	495201.25	102018.57	505197.26	35
26	19822.76	98015.60	20224.09	494459.90	102024.57	504470.60	34
27	19851.27	98009.83	20254.37	493720.68	102030.58	503746.07	33
28	19879.78	98004.05	20284.65	492983.58	102036.60	503023.67	32
29	19908.29	97998.26	20314.94	492248.59	102042.63	502303.37	31
30	19936.79	97992.47	20345.23	491515.70	102048.67	501585.17	30

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TANGENTIVM & SECANTIVM.

I I	Sinus		Tangens		Secans		
30	19936.79	97992.47	20345.23	491515.70	102048.67	501585.17	30
31	19965.30	97986.67	20375.42	490784.91	102054.71	500869.07	29
32	19993.80	97980.86	20405.82	490056.20	102060.76	500155.05	28
33	20022.30	97975.04	20436.12	489329.56	102066.82	499443.11	27
34	20050.80	97969.21	20466.43	488604.99	102072.89	498733.23	26
35	20079.30	97963.37	20496.74	487882.48	102078.97	498025.41	25
36	20107.79	97957.52	20527.05	487162.01	102085.06	497319.64	24
37	20136.29	97951.67	20557.37	486443.59	102091.16	496615.91	23
38	20164.78	97945.81	20587.69	485727.19	102097.27	495914.21	22
39	20193.27	97939.94	20618.01	485012.82	102103.39	495214.53	21
40	20221.76	97934.06	20648.34	484300.45	102109.52	494516.87	20
41	20250.24	97928.17	20678.67	483590.10	102115.66	493821.20	19
42	20278.73	97922.28	20709.00	482881.74	102121.81	493127.54	18
43	20307.21	97916.38	20739.34	482175.36	102127.97	492435.86	17
44	20335.69	97910.47	20769.68	481470.96	102134.14	491746.16	16
45	20364.17	97904.55	20800.03	480768.54	102140.32	491058.44	15
46	20392.65	97898.62	20830.38	480068.08	102146.50	490372.67	14
47	20421.13	97892.68	20860.73	479369.57	102152.69	489688.86	13
48	20449.61	97886.74	20891.09	478673.00	102158.89	489007.00	12
49	20478.08	97880.79	20921.45	477978.37	102165.10	488327.07	11
50	20506.55	97874.83	20951.81	477285.67	102171.32	487649.07	10
51	20535.02	97868.86	20982.18	476594.90	102177.55	486972.99	9
52	20563.49	97862.88	21012.55	475906.03	102183.79	486298.83	8
53	20591.95	97856.89	21042.93	475219.07	102190.04	485626.57	7
54	20620.42	97850.90	21073.31	474534.01	102196.30	484956.21	6
55	20648.88	97844.90	21103.69	473850.83	102202.57	484287.74	5
56	20677.34	97838.89	21134.07	473169.54	102208.85	483621.14	4
57	20705.80	97832.87	21164.46	472490.12	102215.14	482956.43	3
58	20734.26	97826.84	21194.85	471812.56	102221.44	482293.57	2
59	20762.71	97820.80	21225.25	471136.86	102227.75	481632.58	1
60	20791.17	97814.76	21255.65	470463.01	102234.07	480973.43	0
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CANON SINVM

12	Sinus		Tangens		Secans		
0	20791.17	97814.76	21255.65	470463.01	102234.07	480973.43	60
1	20819.62	97808.71	21286.06	469798.00	102240.40	480316.13	59
2	20848.07	97802.65	21316.47	469120.83	102246.73	479660.66	58
3	20876.52	97796.58	21346.88	468452.48	102253.07	479007.02	57
4	20904.97	97790.50	21377.30	467785.95	102259.42	478355.20	56
5	20933.41	97784.41	21407.72	467121.24	102265.78	477705.19	55
6	20961.86	97778.32	21438.14	466458.32	102272.15	477056.99	54
7	20990.30	97772.22	21468.57	465797.21	102278.53	476410.58	53
8	21018.74	97766.11	21499.00	465137.88	102284.92	475765.96	52
9	21047.18	97759.99	21529.44	464480.34	102291.32	475123.12	51
10	21075.61	97753.86	21559.88	463824.57	102297.73	474482.06	50
11	21104.05	97747.73	21590.32	463170.56	102304.15	473842.77	49
12	21132.48	97741.59	21620.77	462518.32	102310.58	473205.23	48
13	21160.91	97735.44	21651.22	461867.83	102317.02	472569.45	47
14	21189.34	97729.28	21681.67	461219.08	102323.47	471935.42	46
15	21217.77	97723.11	21712.13	460572.07	102329.93	471303.13	45
16	21246.19	97716.93	21742.59	459926.80	102336.40	470672.56	44
17	21274.62	97710.75	21773.06	459283.25	102342.88	470043.72	43
18	21303.04	97704.56	21803.53	458641.41	102349.37	469416.60	42
19	21331.46	97698.36	21834.00	458001.29	102355.87	468791.19	41
20	21359.88	97692.15	21864.48	457362.87	102362.38	468167.48	40
21	21388.29	97685.93	21894.96	456726.14	102368.90	467545.48	39
22	21416.71	97679.70	21925.44	456091.11	102375.43	466925.16	38
23	21445.12	97673.47	21955.93	455457.76	102381.96	466306.52	37
24	21473.53	97667.23	21986.42	454826.08	102388.50	465689.56	36
25	21501.94	97660.98	22016.92	454196.08	102395.05	465074.27	35
26	21530.35	97654.72	22047.42	453567.73	102401.61	464460.64	34
27	21558.76	97648.45	22077.93	452941.05	102408.18	463848.67	33
28	21587.16	97642.17	22108.44	452316.01	102414.76	463238.35	32
29	21615.56	97635.89	22138.95	451692.61	102421.35	462629.67	31
30	21643.96	97629.60	22169.47	451070.85	102427.95	462022.63	30
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TANGENTIVM & SECANTIVM.

12	Sinus	Tangens	Secans	
30	21643.96	97629.60	22169.47	451070.85
31	21672.36	97623.30	22199.99	450450.72
32	21700.76	97616.99	22230.51	449832.21
33	21729.15	97610.67	22261.04	449215.32
34	21757.54	97604.35	22291.57	448600.04
35	21785.93	97598.02	22322.11	447986.36
36	21814.32	97591.68	22352.65	447374.28
37	21842.71	97585.33	22383.19	446763.79
38	21871.10	97578.97	22413.74	446154.89
39	21899.48	97572.60	22444.29	445547.56
40	21927.86	97566.23	22474.85	444941.81
41	21956.24	97559.85	22505.41	444337.62
42	21984.62	97553.46	22535.97	443734.99
43	22013.00	97547.06	22566.54	443133.92
44	22041.37	97540.65	22597.11	442534.39
45	22069.74	97534.23	22627.69	441936.41
46	22098.11	97527.81	22658.27	441339.96
47	22126.48	97521.38	22688.85	440745.04
48	22154.85	97514.94	22719.44	440151.64
49	22183.21	97508.49	22750.03	439559.76
50	22211.58	97502.03	22780.63	438969.40
51	22239.94	97495.56	22811.23	438380.54
52	22268.30	97489.09	22841.83	437793.17
53	22296.66	97482.61	22872.44	437207.31
54	22325.01	97476.12	22903.05	436622.93
55	22353.37	97469.62	22933.67	436040.03
56	22381.72	97463.11	22964.29	435458.61
57	22410.07	97456.60	22994.92	434878.66
58	22438.41	97450.08	23025.55	434300.18
59	22466.76	97443.55	23056.18	433723.16
60	22495.11	97437.01	23086.82	433147.59
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13	Sinus		Tangens		Secans		
0	22495.11	97437.01	23086.82	433147.59	102630.39	444541.15	60
1	22523.45	97430.46	23117.46	432573.47	102637.29	443981.76	59
2	22551.79	97423.90	23148.11	432000.79	102644.20	443423.82	58
3	22580.13	97417.34	23178.76	431429.55	102651.12	442867.31	57
4	22608.46	97410.77	23209.41	430859.74	102658.05	442312.24	56
5	22636.80	97404.19	23240.07	430291.36	102664.99	441758.59	55
6	22665.13	97397.60	23270.73	429724.40	102671.94	441206.37	54
7	22693.46	97391.00	23301.40	429158.85	102678.90	440655.56	53
8	22721.79	97384.39	23332.07	428594.72	102685.87	440106.16	52
9	22750.12	97377.78	23362.74	428031.99	102692.84	439558.17	51
10	22778.44	97371.16	23393.42	427470.66	102699.82	439011.58	50
11	22806.77	97364.53	23424.10	426910.72	102706.81	438466.38	49
12	22835.09	97357.89	23454.79	426352.18	102713.81	437922.57	48
13	22863.41	97351.24	23485.48	425795.01	102720.82	437380.15	47
14	22891.72	97344.58	23516.17	425239.23	102727.84	436839.10	46
15	22920.04	97337.92	23546.87	424684.82	102734.87	436299.43	45
16	22948.35	97331.25	23577.58	424131.77	102741.91	435761.13	44
17	22976.66	97324.57	23608.29	423580.09	102748.96	435224.19	43
18	23004.97	97317.88	23639.00	423029.77	102756.02	434688.61	42
19	23033.28	97311.18	23669.72	422480.80	102763.09	434154.38	41
20	23061.59	97304.48	23700.44	421933.18	102770.17	433621.50	40
21	23089.89	97297.77	23731.16	421386.90	102777.26	433089.96	39
22	23118.19	97291.05	23761.89	420841.96	102784.36	432559.77	38
23	23146.49	97284.32	23792.62	420298.35	102791.47	432030.90	37
24	23174.79	97277.58	23823.36	419756.06	102798.59	431503.36	36
25	23203.09	97270.84	23854.10	419215.10	102805.72	430977.15	35
26	23231.38	97264.09	23884.85	418675.46	102812.86	430452.25	34
27	23259.67	97257.33	23915.60	418137.13	102820.01	429928.67	33
28	23287.96	97250.56	23946.35	417600.11	102827.17	429406.40	32
29	23316.25	97243.78	23977.11	417064.40	102834.34	428885.43	31
30	23344.54	97236.99	24007.87	416529.98	102841.52	428365.76	30

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TANGENTIVM & SECANTIVM.

13	Sinus	Tangens	Secans				
30	23344.54	97236.99	24007.87	416529.98	102841.52	428365.76	30
31	23372.82	97230.19	24038.64	415996.85	102848.71	427847.38	29
32	23401.10	97223.39	24069.41	415465.01	102855.91	427330.29	28
33	23429.38	97216.58	24100.19	414934.46	102863.12	426814.49	27
34	23457.66	97209.76	24130.97	414405.19	102870.34	426299.96	26
35	23485.94	97202.93	24161.76	413877.19	102877.57	425786.71	25
36	23514.21	97196.09	24192.55	413350.46	102884.81	425274.74	24
37	23542.48	97189.25	24223.34	412824.99	102892.06	424764.02	23
38	23570.75	97182.40	24254.14	412300.79	102899.32	424254.57	22
39	23599.02	97175.54	24284.94	411777.84	102906.58	423746.37	21
40	23627.29	97168.67	24315.75	411256.14	102913.85	423239.43	20
41	23655.55	97161.79	24346.56	410735.69	102921.13	422733.73	19
42	23683.81	97154.91	24377.37	410216.49	102928.42	422229.28	18
43	23712.07	97148.02	24408.19	409698.52	102935.72	421726.06	17
44	23740.33	97141.12	24439.01	409181.78	102943.03	421224.08	16
45	23768.59	97134.21	24469.84	408666.27	102950.35	420723.33	15
46	23796.84	97127.29	24500.67	408151.99	102957.68	420223.80	14
47	23825.10	97120.36	24531.51	407638.92	102965.02	419725.49	13
48	23853.35	97113.43	24562.35	407127.07	102972.37	419228.40	12
49	23881.59	97106.49	24593.20	406616.43	102979.73	418732.52	11
50	23909.84	97099.54	24624.05	406107.00	102987.10	418237.85	10
51	23938.08	97092.58	24654.91	405598.77	102994.48	417744.38	9
52	23966.33	97085.61	24685.77	405091.74	103001.87	417252.10	8
53	23994.57	97078.63	24716.63	404585.90	103009.27	416761.02	7
54	24022.80	97071.65	24747.50	404081.25	103016.68	416271.14	6
55	24051.04	97064.66	24778.37	403577.79	103024.10	415782.43	5
56	24079.27	97057.66	24809.25	403075.50	103031.53	415294.91	4
57	24107.51	97050.65	24840.13	402574.40	103038.97	414808.56	3
58	24135.74	97043.63	24871.02	402074.46	103046.42	414323.39	2
59	24163.96	97036.60	24901.91	401575.70	103053.88	413839.39	1
60	24192.19	97029.57	24932.80	401078.09	103061.35	413356.55	0

CANON SINVM

14	Sinus	Tangens	Secans				
0	24192.19	97029.57	24932.80	401078.09	103061.35	413356.55	60
1	24220.41	97022.53	24963.70	400581.65	103068.83	412874.87	59
2	24248.63	97015.48	24994.60	400086.36	103076.32	412394.35	58
3	24276.85	97008.42	25025.51	399592.23	103083.82	411914.98	57
4	24305.07	97001.35	25056.42	399099.24	103091.33	411436.75	56
5	24333.29	96994.28	25087.34	398607.39	103098.85	410959.67	55
6	24361.50	96987.20	25118.26	398116.69	103106.38	410483.74	54
7	24389.71	96980.11	25149.19	397627.12	103113.92	410008.93	53
8	24417.92	96973.01	25180.12	397138.68	103121.47	409535.26	52
9	24446.13	96965.90	25211.06	396651.37	103129.03	409062.72	51
10	24474.33	96958.79	25242.00	396165.18	103136.60	408591.30	50
11	24502.54	96951.67	25272.94	395680.11	103144.18	408121.00	49
12	24530.74	96944.54	25303.89	395196.15	103151.77	407651.81	48
13	24558.94	96937.40	25334.84	394713.31	103159.36	407183.74	47
14	24587.13	96930.25	25365.80	394231.57	103166.97	406716.77	46
15	24615.33	96923.09	25396.76	393750.94	103174.59	406250.91	45
16	24643.52	96915.92	25427.73	393271.41	103182.22	405786.15	44
17	24671.71	96908.75	25458.70	392792.97	103189.85	405322.49	43
18	24699.90	96901.57	25489.68	392315.63	103197.50	404859.92	42
19	24728.09	96894.38	25520.66	391839.37	103205.16	404398.44	41
20	24756.27	96887.18	25551.65	391364.20	103212.82	403938.04	40
21	24784.45	96879.98	25582.64	390890.11	103220.50	403478.72	39
22	24812.63	96872.77	25613.63	390417.10	103228.18	403020.48	38
23	24840.81	96865.55	25644.63	389945.16	103235.88	402563.32	37
24	24868.99	96858.32	25675.63	389474.29	103243.59	402107.22	36
25	24897.16	96851.08	25706.64	389004.48	103251.30	401652.19	35
26	24925.33	96843.83	25737.66	388535.74	103259.03	401198.23	34
27	24953.50	96836.57	25768.68	388068.05	103266.76	400745.32	33
28	24981.67	96829.31	25799.70	387601.42	103274.51	400293.47	32
29	25009.84	96822.04	25830.73	387135.84	103282.27	399842.67	31
30	25038.00	96814.76	25861.76	386671.31	103290.03	399392.02	30

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TANGENTIVM & SECANTIVM.

14	Sinus		Tangens		Secans		
30	25038.00	96814.76	25861.76	386671.31	103290.03	399392.92	30
31	25066.16	96807.47	25892.80	386207.82	103297.81	398944.21	29
32	25094.32	96800.18	25923.84	385745.37	103305.59	398496.54	28
33	25122.48	96792.88	25954.88	385283.96	103313.39	398049.91	27
34	25150.63	96785.57	25985.93	384823.58	103321.19	397604.31	26
35	25178.79	96778.25	26016.99	384364.24	103329.01	397159.75	25
36	25206.94	96770.92	26048.05	383905.91	103336.83	396716.21	24
37	25235.08	96763.58	26079.11	383448.61	103344.67	396273.69	23
38	25263.23	96756.23	26110.18	382992.33	103352.51	395832.19	22
39	25291.37	96748.88	26141.26	382537.07	103360.37	395391.71	21
40	25319.52	96741.52	26172.34	382082.81	103368.23	394952.24	20
41	25347.66	96734.15	26203.42	381629.57	103376.11	394513.79	19
42	25375.79	96726.77	26234.51	381177.33	103383.99	394076.33	18
43	25403.93	96719.38	26265.60	380726.09	103391.88	393639.88	17
44	25432.06	96711.99	26296.70	380275.85	103399.79	393204.43	16
45	25460.19	96704.59	26327.80	379826.61	103407.70	392769.97	15
46	25488.32	96697.18	26358.91	379378.35	103415.63	392336.51	14
47	25516.45	96689.76	26390.02	378931.09	103423.56	391904.03	13
48	25544.58	96682.33	26421.14	378484.81	103431.51	391472.54	12
49	25572.70	96674.90	26452.26	378039.51	103439.46	391042.03	11
50	25600.82	96667.46	26483.39	377595.19	103447.43	390612.50	10
51	25628.94	96660.01	26514.52	377151.85	103455.40	390183.95	9
52	25657.05	96652.55	26545.66	376709.47	103463.38	389756.37	8
53	25685.17	96645.08	26576.80	376268.07	103471.38	389329.76	7
54	25713.28	96637.60	26607.94	375827.63	103479.38	388904.11	6
55	25741.39	96630.12	26639.09	375388.15	103487.40	388479.43	5
56	25769.50	96622.63	26670.25	374949.63	103495.42	388055.70	4
57	25797.60	96615.13	26701.41	374512.07	103503.46	387632.93	3
58	25825.70	96607.62	26732.57	374075.46	103511.50	387211.12	2
59	25853.81	96600.10	26763.74	373639.80	103519.55	386790.25	1
60	25881.90	96592.58	26794.92	373205.08	103527.62	386370.33	0

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CANON SINVM

15	Sinus		Tangens		Secans		
0	25881.90	96592.58	26794.92	373205.08	103527.62	386370.33	60
1	25910.00	96585.05	26826.10	372771.31	103535.69	385951.35	59
2	25938.10	96577.51	26857.28	372338.47	103543.78	385533.32	58
3	25966.19	96569.96	26888.47	371906.58	103551.87	385116.22	57
4	25994.28	96562.40	26919.67	371475.61	103559.98	384700.05	56
5	26022.37	96554.83	26950.87	371045.58	103568.09	384284.82	55
6	26050.45	96547.26	26982.07	370616.48	103576.21	383870.51	54
7	26078.53	96539.68	27013.28	370188.30	103584.35	383457.13	53
8	26106.61	96532.09	27044.49	369761.03	103592.49	383044.67	52
9	26134.69	96524.49	27075.71	369334.69	103600.65	382633.13	51
10	26162.77	96516.88	27106.93	368909.27	103608.81	382222.51	50
11	26190.85	96509.27	27138.16	368484.75	103616.99	381812.80	49
12	26218.92	96501.65	27169.40	368061.15	103625.17	381403.99	48
13	26246.99	96494.02	27200.64	367638.45	103633.37	380996.10	47
14	26275.06	96486.38	27231.88	367216.65	103641.57	380589.11	46
15	26303.12	96478.73	27263.13	366795.75	103649.79	380183.01	45
16	26331.18	96471.07	27294.38	366375.75	103658.01	379777.82	44
17	26359.24	96463.41	27325.64	365956.65	103666.25	379373.52	43
18	26387.30	96455.74	27356.90	365538.44	103674.49	378970.11	42
19	26415.36	96448.06	27388.17	365121.11	103682.75	378567.60	41
20	26443.42	96440.37	27419.44	364704.67	103691.01	378165.96	40
21	26471.47	96432.67	27450.72	364289.11	103699.29	377765.22	39
22	26499.52	96424.97	27482.01	363874.44	103707.57	377365.35	38
23	26527.57	96417.26	27513.30	363460.64	103715.87	376966.36	37
24	26555.61	96409.54	27544.59	363047.71	103724.17	376568.24	36
25	26583.65	96401.81	27575.89	362635.66	103732.49	376171.00	35
26	26611.69	96394.07	27607.19	362224.47	103740.82	375774.62	34
27	26639.73	96386.33	27638.50	361814.15	103749.15	375379.11	33
28	26667.77	96378.58	27669.81	361404.69	103757.50	374984.47	32
29	26695.81	96370.82	27701.13	360996.09	103765.85	374590.68	31
30	26723.84	96363.05	27732.45	360588.35	103774.22	374197.75	30

TANGENTIVM & SECANTIVM.

15	Sinus	Tangens	Secans	
30	26723.84	96363.05	27732.45	360588.35
31	26751.87	96355.27	27763.78	360181.46
32	26779.89	96347.48	27795.12	359775.43
33	26807.92	96339.69	27826.46	359370.24
34	26835.94	96331.89	27857.80	358965.90
35	26863.96	96324.08	27889.15	358562.41
36	26891.98	96316.26	27920.50	358159.75
37	26920.00	96308.43	27951.86	357757.94
38	26948.01	96300.59	27983.22	357356.96
39	26976.02	96292.75	28014.59	356956.81
40	27004.03	96284.90	28045.97	356557.49
41	27032.04	96277.04	28077.35	356159.00
42	27060.04	96269.17	28108.73	355761.33
43	27088.05	96261.30	28140.12	355364.49
44	27116.05	96253.42	28171.52	354968.46
45	27144.04	96245.53	28202.92	354573.25
46	27172.04	96237.63	28234.32	354178.86
47	27200.03	96229.72	28265.73	353785.28
48	27228.02	96221.80	28297.15	353392.51
49	27256.01	96213.87	28328.57	353000.54
50	27284.00	96205.94	28359.99	352609.38
51	27311.98	96198.00	28391.42	352219.02
52	27339.96	96190.05	28422.86	351829.46
53	27367.94	96182.09	28454.30	351440.70
54	27395.92	96174.13	28485.75	351052.73
55	27423.90	96166.16	28517.20	350665.55
56	27451.87	96158.18	28548.66	350279.16
57	27479.84	96150.19	28580.12	349893.56
58	27507.81	96142.19	28611.59	349508.74
59	27535.78	96134.18	28643.06	349124.70
60	27563.74	96126.17	28674.54	348741.44
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16	Sinus	Tangens	Secans				
0	27563.74	96126.17	28674.54	348741.44	104029.94	362795.53	60
1	27591.70	96118.15	28706.02	348358.96	104038.63	362427.88	59
2	27619.65	96110.12	28737.51	347977.26	104047.32	362061.01	58
3	27647.61	96102.08	28769.00	347596.32	104056.02	361694.90	57
4	27675.56	96094.03	28800.50	347216.16	104064.73	361329.57	56
5	27703.52	96085.98	28832.01	346836.76	104073.46	360965.01	55
6	27731.47	96077.92	28863.52	346458.13	104082.19	360601.21	54
7	27759.41	96069.85	28895.03	346080.26	104090.94	360238.18	53
8	27787.36	96061.77	28926.55	345703.15	104099.69	359875.90	52
9	27815.30	96053.68	28958.08	345326.79	104108.45	359514.39	51
10	27843.24	96045.58	28989.61	344951.20	104117.23	359153.63	50
11	27871.18	96037.48	29021.14	344576.35	104126.01	358793.62	49
12	27899.11	96029.37	29052.68	344202.26	104134.81	358434.37	48
13	27927.04	96021.25	29084.23	343828.91	104143.62	358075.86	47
14	27954.97	96013.12	29115.78	343456.31	104152.43	357718.10	46
15	27982.90	96004.98	29147.34	343084.46	104161.26	357361.08	45
16	28010.83	95996.84	29178.90	342713.34	104170.09	357004.81	44
17	28038.75	95988.69	29210.47	342342.97	104178.94	356649.28	43
18	28066.67	95980.53	29242.05	341973.33	104187.80	356294.48	42
19	28094.59	95972.36	29273.63	341604.43	104196.67	355940.42	41
20	28122.51	95964.18	29305.21	341236.26	104205.54	355587.10	40
21	28150.42	95956.00	29336.80	340868.82	104214.43	355234.50	39
22	28178.33	95947.81	29368.39	340502.10	104223.33	354882.63	38
23	28206.24	95939.61	29399.99	340136.12	104232.24	354531.49	37
24	28234.15	95931.40	29431.60	339770.85	104241.16	354181.07	36
25	28262.05	95923.18	29463.21	339406.31	104250.09	353831.38	35
26	28289.95	95914.95	29494.83	339042.49	104259.03	353482.40	34
27	28317.85	95906.72	29526.45	338679.38	104267.98	353134.14	33
28	28345.75	95898.48	29558.08	338316.99	104276.94	352786.60	32
29	28373.64	95890.23	29589.71	337955.31	104285.91	352439.77	31
30	28401.53	95881.97	29621.35	337594.34	104294.89	352093.65	30

TANGENTIVM & SECANTIVM.

16	Sinus		Tangens		Secans		
30	28401.53	95881.97	29621.35	337594.34	104294.89	352093.65	30
31	28429.42	95873.70	29652.99	337234.08	104303.88	351748.24	29
32	28457.31	95865.43	29684.64	336874.53	104312.89	351403.54	28
33	28485.20	95857.15	29716.30	336515.68	104321.90	351059.54	27
34	28513.08	95848.86	29747.96	336157.53	104330.92	350716.25	26
35	28540.96	95840.56	29779.62	335800.08	104339.95	350373.65	25
36	28568.84	95832.25	29811.29	335443.33	104349.00	350031.75	24
37	28596.71	95823.94	29842.97	335087.28	104358.05	349690.55	23
38	28624.58	95815.62	29874.65	334731.91	104367.12	349350.04	22
39	28652.45	95807.29	29906.34	334377.24	104376.19	349010.23	21
40	28680.32	95798.95	29938.03	334023.26	104385.28	348671.10	20
41	28708.19	95790.60	29969.73	333669.97	104394.37	348332.67	19
42	28736.05	95782.25	30001.44	333317.36	104403.48	347994.92	18
43	28763.91	95773.89	30033.15	332965.43	104412.59	347657.85	17
44	28791.77	95765.52	30064.86	332614.19	104421.72	347321.46	16
45	28819.63	95757.14	30096.58	332263.62	104430.86	346985.76	15
46	28847.48	95748.75	30128.31	331913.73	104440.01	346650.73	14
47	28875.33	95740.35	30160.04	331564.52	104449.17	346316.37	13
48	28903.18	95731.95	30191.78	331215.98	104458.33	345982.69	12
49	28931.03	95723.54	30223.52	330868.11	104467.51	345649.69	11
50	28958.87	95715.12	30255.27	330520.91	104476.70	345317.35	10
51	28986.71	95706.69	30287.03	330174.38	104485.90	344985.68	9
52	29014.55	95698.25	30318.79	329828.51	104495.11	344654.67	8
53	29042.39	95689.81	30350.55	329483.30	104504.33	344324.33	7
54	29070.22	95681.36	30382.32	329138.76	104513.57	343994.65	6
55	29098.05	95672.90	30414.10	328794.87	104522.81	343665.63	5
56	29125.88	95664.43	30445.88	328451.64	104532.06	343337.27	4
57	29153.71	95655.95	30477.67	328109.07	104541.32	343009.56	3
58	29181.53	95647.47	30509.46	327767.15	104550.60	342682.51	2
59	29209.35	95638.98	30541.26	327425.88	104559.88	342356.11	1
60	29237.17	95630.48	30573.07	327085.26	104569.18	342030.36	0
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CANON SINVM

17	Sinus		Tangens		Secans		
0	29237.17	95630.48	30573.07	327085.26	104569.18	342030.36	60
1	29264.99	95621.97	30604.88	326745.29	104578.48	341705.26	59
2	29292.80	95613.45	30636.69	326405.96	104587.80	341380.80	58
3	29320.61	95604.92	30668.51	326067.28	104597.12	341056.99	57
4	29348.42	95596.39	30700.34	325729.24	104606.46	340733.82	56
5	29376.23	95587.85	30732.18	325391.84	104615.81	340411.30	55
6	29404.03	95579.30	30764.02	325055.08	104625.16	340089.41	54
7	29431.83	95570.74	30795.86	324718.95	104634.53	339768.16	53
8	29459.63	95562.17	30827.71	324383.46	104643.91	339447.54	52
9	29487.43	95553.60	30859.57	324048.60	104653.30	339127.55	51
10	29515.22	95545.02	30891.43	323714.38	104662.70	338808.20	50
11	29543.01	95536.43	30923.30	323380.78	104672.11	338489.48	49
12	29570.80	95527.83	30955.17	323047.80	104681.53	338171.38	48
13	29598.59	95519.22	30987.05	322715.46	104690.96	337853.91	47
14	29626.38	95510.61	31018.93	322383.73	104700.40	337537.07	46
15	29654.16	95501.99	31050.82	322052.63	104709.86	337220.84	45
16	29681.94	95493.36	31082.72	321722.15	104719.32	336905.24	44
17	29709.71	95484.72	31114.62	321392.28	104728.79	336590.26	43
18	29737.49	95476.07	31146.53	321063.04	104738.28	336275.89	42
19	29765.26	95467.42	31178.44	320734.40	104747.77	335962.14	41
20	29793.03	95458.76	31210.36	320406.38	104757.28	335649.00	40
21	29820.79	95450.09	31242.29	320078.97	104766.79	335336.47	39
22	29848.56	95441.41	31274.22	319752.17	104776.32	335024.55	38
23	29876.32	95432.72	31306.16	319425.98	104785.86	334713.24	37
24	29904.08	95424.03	31338.10	319100.39	104795.40	334402.54	36
25	29931.84	95415.33	31370.05	318775.40	104804.96	334092.44	35
26	29959.59	95406.62	31402.00	318451.02	104814.53	333782.94	34
27	29987.34	95397.90	31433.96	318127.24	104824.11	333474.05	33
28	30015.09	95389.17	31465.93	317804.06	104833.70	333165.75	32
29	30042.84	95380.43	31497.90	317481.47	104843.30	332858.05	31
30	30070.58	95371.69	31529.88	317159.48	104852.91	332550.95	30
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TANGENTIVM & SECANTIVM.

17	Sinus	Tangens	Secans	
30	30070.58	95371.69	31529.88	317159.48
31	30098.32	95362.94	31561.86	316838.08
32	30126.06	95354.18	31593.85	316517.28
33	30153.80	95345.41	31625.85	316197.06
34	30181.53	95336.64	31657.85	315877.44
35	30209.26	95327.86	31689.86	315558.40
36	30236.99	95319.07	31721.87	315239.94
37	30264.71	95310.27	31753.89	314922.07
38	30292.44	95301.46	31785.91	314604.78
39	30320.16	95292.64	31817.94	314288.07
40	30347.88	95283.82	31849.98	313971.94
41	30375.59	95274.99	31882.02	313656.39
42	30403.31	95266.15	31914.07	313341.41
43	30431.02	95257.30	31946.13	313027.01
44	30458.72	95248.44	31978.19	312713.17
45	30486.43	95239.58	32010.25	312399.91
46	30514.13	95230.71	32042.32	312087.22
47	30541.83	95221.83	32074.40	311775.09
48	30569.53	95212.94	32106.49	311463.53
49	30597.23	95204.04	32138.58	311152.54
50	30624.92	95195.14	32170.67	310842.10
51	30652.61	95186.23	32202.77	310532.23
52	30680.29	95177.31	32234.88	310222.91
53	30707.98	95168.38	32267.00	309914.16
54	30735.66	95159.44	32299.12	309605.96
55	30763.34	95150.49	32331.25	309298.31
56	30791.02	95141.54	32363.38	308991.22
57	30818.69	95132.58	32395.52	308684.68
58	30846.36	95123.61	32427.66	308378.69
59	30874.03	95114.63	32459.81	308073.25
60	30901.70	95105.65	32491.97	307768.35

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CANON SIN VVM

18	Sinus		Tangens		Secans		
0	30901.70	95105.65	32491.92	307768.35	105146.22	323606.80	60
1	30929.36	95096.66	32524.13	307464.00	105156.17	323317.36	59
2	30957.02	95087.66	32556.30	307160.20	105166.12	323028.46	58
3	30984.68	95078.65	32588.48	306856.93	105176.08	322740.11	57
4	31012.34	95069.63	32620.66	306554.21	105186.06	322452.30	56
5	31039.99	95060.60	32652.85	306252.03	105196.05	322165.03	55
6	31067.64	95051.57	32685.04	305950.38	105206.04	321878.30	54
7	31095.29	95042.53	32717.24	305649.28	105216.05	321592.10	53
8	31122.94	95033.48	32749.44	305348.70	105226.07	321306.44	52
9	31150.58	95024.42	32781.65	305048.66	105236.10	321021.32	51
10	31178.22	95015.36	32813.87	304749.15	105246.14	320736.73	50
11	31205.86	95006.29	32846.10	304450.18	105256.19	320452.66	49
12	31233.49	94997.21	32878.33	304151.73	105266.25	320169.13	48
13	31261.12	94988.12	32910.56	303853.81	105276.33	319886.13	47
14	31288.75	94979.02	32942.80	303556.41	105286.41	319603.65	46
15	31316.38	94969.91	32975.05	303259.54	105296.51	319321.70	45
16	31344.00	94960.80	33007.31	302963.20	105306.61	319040.28	44
17	31371.63	94951.68	33039.57	302667.37	105316.73	318759.37	43
18	31399.25	94942.55	33071.84	302372.07	105326.86	318478.99	42
19	31426.86	94933.41	33104.11	302077.28	105336.99	318199.13	41
20	31454.48	94924.26	33136.39	301783.01	105347.14	317919.78	40
21	31482.09	94915.11	33168.68	301489.26	105357.30	317640.95	39
22	31509.69	94905.95	33200.97	301196.02	105367.47	317362.64	38
23	31537.30	94896.78	33233.27	300903.30	105377.65	317084.84	37
24	31564.90	94887.60	33265.57	300611.09	105387.85	316807.56	36
25	31592.50	94878.41	33297.88	300319.39	105398.05	316530.78	35
26	31620.10	94869.22	33330.20	300028.20	105408.26	316254.52	34
27	31647.70	94860.02	33362.52	299737.51	105418.49	315978.76	33
28	31675.29	94850.81	33394.85	299447.34	105428.73	315703.51	32
29	31702.88	94841.59	33427.19	299157.66	105438.97	315428.77	31
30	31730.47	94832.36	33459.53	298868.50	105449.23	315154.53	30

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TANGENTIVM & SECANTIVM.

18	Sinus		Tangens		Secans		
30	31730.47	94832.36	33459.53	298868.50	105449.23	315154.53	30
31	31758.05	94823.13	33491.88	298579.83	105459.50	314880.79	29
32	31785.63	94813.89	33524.24	298291.66	105469.78	314607.56	28
33	31813.21	94804.64	33556.60	298004.00	105480.07	314334.83	27
34	31840.79	94795.38	33588.97	297716.83	105490.37	314062.59	26
35	31868.36	94786.11	33621.34	297430.16	105500.68	313790.86	25
36	31895.93	94776.84	33653.72	297143.99	105511.01	313519.62	24
37	31923.50	94767.56	33686.11	296858.31	105521.34	313248.87	23
38	31951.06	94758.27	33718.50	296573.12	105531.69	312978.62	22
39	31978.63	94748.97	33750.90	296288.42	105542.04	312708.86	21
40	32006.19	94739.66	33783.30	296004.22	105552.41	312439.59	20
41	32033.74	94730.35	33815.71	295720.50	105562.79	312170.81	19
42	32061.30	94721.03	33848.13	295437.27	105573.18	311902.52	18
43	32088.85	94711.70	33880.56	295154.53	105583.58	311634.72	17
44	32116.40	94702.36	33912.99	294872.27	105593.99	311367.40	16
45	32143.95	94693.01	33945.43	294590.50	105604.41	311100.57	15
46	32171.49	94683.66	33977.87	294309.21	105614.85	310834.22	14
47	32199.03	94674.30	34010.32	294028.40	105625.29	310568.35	13
48	32226.57	94664.93	34042.78	293748.07	105635.75	310302.96	12
49	32254.10	94655.55	34075.24	293468.22	105646.21	310038.05	11
50	32281.64	94646.16	34107.71	293188.85	105656.69	309773.63	10
51	32309.17	94636.76	34140.19	292909.95	105667.18	309509.67	9
52	32336.70	94627.36	34172.67	292631.52	105677.68	309246.20	8
53	32364.22	94617.95	34205.16	292353.58	105688.19	308983.19	7
54	32391.74	94608.53	34237.65	292076.10	105698.71	308720.66	6
55	32419.26	94599.10	34270.15	291799.09	105709.24	308458.60	5
56	32446.78	94589.67	34302.66	291522.56	105719.78	308197.02	4
57	32474.29	94580.23	34335.18	291246.49	105730.34	307935.90	3
58	32501.80	94570.78	34367.70	290970.89	105740.90	307675.25	2
59	32529.31	94561.32	34400.23	290695.76	105751.48	307415.07	1
60	32556.82	94551.85	34432.76	290421.09	105762.07	307155.35	0

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CANON SINVM

19	Sinus		Tangens		Secans		
0	32556.82	94551.85	34432.76	290421.09	105762.07	307155.35	60
1	32584.32	94542.38	34465.30	290146.88	105772.67	306896.10	59
2	32611.82	94532.90	34497.85	289873.14	105783.28	306637.31	58
3	32639.31	94523.41	34530.40	289599.86	105793.90	306378.98	57
4	32666.81	94513.91	34562.96	289327.04	105804.53	306121.11	56
5	32694.30	94504.40	34595.53	289054.67	105815.17	305863.70	55
6	32721.79	94494.89	34628.10	288782.77	105825.83	305606.75	54
7	32749.28	94485.37	34660.68	288511.32	105836.49	305350.26	53
8	32776.76	94475.84	34693.27	288240.33	105847.17	305094.23	52
9	32804.24	94466.30	34725.86	287969.79	105857.86	304838.64	51
10	32831.72	94456.75	34758.46	287699.70	105868.55	304583.52	50
11	32859.19	94447.20	34791.07	287430.07	105879.26	304328.84	49
12	32886.66	94437.64	34823.68	287160.88	105889.99	304074.62	48
13	32914.13	94428.07	34856.30	286892.15	105900.72	303820.84	47
14	32941.60	94418.49	34888.93	286623.86	105911.46	303567.52	46
15	32969.06	94408.90	34921.56	286356.02	105922.21	303314.64	45
16	32996.52	94399.31	34954.20	286088.63	105932.98	303062.21	44
17	33023.98	94389.71	34986.85	285821.68	105943.76	302810.23	43
18	33051.44	94380.10	35019.50	285555.17	105954.54	302558.68	42
19	33078.89	94370.48	35052.16	285289.11	105965.34	302307.59	41
20	33106.34	94360.85	35084.83	285023.49	105976.15	302056.93	40
21	33133.79	94351.21	35117.50	284758.31	105986.97	301806.72	39
22	33161.23	94341.57	35150.18	284493.56	105997.81	301556.94	38
23	33188.67	94331.92	35182.87	284229.26	106008.65	301307.60	37
24	33216.11	94322.26	35215.56	283965.39	106019.51	301058.70	36
25	33243.55	94312.60	35248.26	283701.96	106030.37	300810.24	35
26	33270.98	94302.93	35280.97	283438.96	106041.25	300562.21	34
27	33298.41	94293.25	35313.68	283176.39	106052.14	300314.62	33
28	33325.84	94283.56	35346.40	282914.26	106063.04	300067.46	32
29	33353.27	94273.86	35379.13	282652.56	106073.95	299820.73	31
30	33380.69	94264.15	35411.86	282391.29	106084.87	299574.43	30

TANGENTIVM & SECANTIVM.

19	Sinus	Tangens	Secans	
30	33380.69	94264.15	35411.86	282391.29
31	33408.10	94254.43	35444.60	282130.45
32	33435.52	94244.71	35477.35	281870.03
33	33462.93	94234.98	35510.10	281610.04
34	33490.34	94225.24	35542.86	281350.48
35	33517.75	94215.50	35575.63	281091.34
36	33545.16	94205.75	35608.40	280832.63
37	33572.56	94195.99	35641.18	280574.33
38	33599.96	94186.22	35673.97	280316.46
39	33627.35	94176.44	35706.76	280059.01
40	33654.75	94166.65	35739.56	279801.98
41	33682.14	94156.85	35772.37	279545.37
42	33709.53	94147.05	35805.18	279289.17
43	33736.91	94137.24	35838.00	279033.39
44	33764.29	94127.42	35870.83	278778.02
45	33791.67	94117.60	35903.67	278523.07
46	33819.05	94107.77	35936.51	278268.53
47	33846.42	94097.93	35969.36	278014.40
48	33873.79	94088.08	36002.22	277760.69
49	33901.16	94078.22	36035.08	277507.38
50	33928.53	94068.35	36067.95	277254.48
51	33955.89	94058.48	36100.83	277001.99
52	33983.25	94048.60	36133.71	276749.90
53	34010.60	94038.71	36166.60	276498.22
54	34037.95	94028.81	36199.50	276246.95
55	34065.30	94018.90	36232.40	275996.08
56	34092.65	94008.99	36265.31	275745.61
57	34120.00	93999.07	36298.23	275495.54
58	34147.34	93989.14	36331.15	275245.88
59	34174.68	93979.20	36364.08	274996.61
60	34202.02	93969.26	36397.02	274747.74
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CANON SINVM

20	Sinus		Tangens		Secans		
0	34202.02	93969.26	36397.02	274747.74	106417.78	292380.44	60
1	34229.35	93959.31	36429.97	274499.27	106429.05	292146.97	59
2	34256.68	93949.35	36462.92	274251.20	106440.33	291913.89	58
3	34284.01	93939.38	36495.88	274003.52	106451.63	291681.21	57
4	34311.33	93929.40	36528.85	273756.23	106462.94	291448.92	56
5	34338.65	93919.42	36561.82	273509.34	106474.26	291217.03	55
6	34365.97	93909.43	36594.80	273262.84	106485.59	290985.53	54
7	34393.29	93899.43	36627.79	273016.74	106496.93	290754.43	53
8	34420.60	93889.42	36660.79	272771.02	106508.28	290523.72	52
9	34447.91	93879.40	36693.79	272525.69	106519.64	290293.39	51
10	34475.22	93869.37	36726.80	272280.75	106531.01	290063.46	50
11	34502.52	93859.34	36759.82	272036.20	106542.40	289833.91	49
12	34529.82	93849.30	36792.84	271792.04	106553.80	289604.75	48
13	34557.12	93839.25	36825.87	271548.26	106565.21	289375.98	47
14	34584.42	93829.19	36858.91	271304.87	106576.63	289147.60	46
15	34611.71	93819.13	36891.95	271061.86	106588.07	288919.59	45
16	34639.00	93809.06	36925.00	270819.23	106599.51	288691.98	44
17	34666.29	93798.98	36958.06	270576.99	106610.97	288464.74	43
18	34693.57	93788.89	36991.13	270335.13	106622.43	288237.89	42
19	34720.85	93778.79	37024.20	270093.64	106633.91	288011.42	41
20	34748.13	93768.69	37057.28	269852.54	106645.40	287785.32	40
21	34775.40	93758.58	37090.37	269611.81	106656.90	287559.61	39
22	34802.67	93748.46	37123.46	269371.47	106668.42	287334.28	38
23	34829.94	93738.33	37156.56	269131.49	106679.94	287109.32	37
24	34857.21	93728.19	37189.67	268891.90	106691.48	286884.74	36
25	34884.47	93718.05	37222.78	268652.67	106703.02	286660.53	35
26	34911.73	93707.90	37255.90	268413.83	106714.58	286436.70	34
27	34938.99	93697.74	37289.03	268175.35	106726.15	286213.24	33
28	34966.24	93687.57	37322.17	267937.25	106737.74	285990.15	32
29	34993.49	93677.40	37355.32	267699.51	106749.34	285767.44	31
30	35020.74	93667.22	37388.47	267462.15	106760.94	285545.09	30

TANGENTIVM & SECANTIVM.

20	Sinus		Tangens		Secans		
30	35020.74	93667.22	37388.47	267462.15	106760.94	285545.09	30
31	35047.99	93657.03	37421.63	267225.16	106772.55	285323.12	29
32	35075.23	93646.83	37454.79	266988.53	106784.18	285101.52	28
33	35102.47	93636.62	37487.97	266752.27	106795.82	284880.28	27
34	35129.70	93626.40	37521.15	266516.38	106807.47	284659.41	26
35	35156.93	93616.18	37554.34	266280.85	106819.14	284438.91	25
36	35184.16	93605.95	37587.53	266045.69	106830.81	284218.77	24
37	35211.39	93595.71	37620.73	265810.89	106842.50	283998.99	23
38	35238.62	93585.46	37653.94	265576.45	106854.20	283779.58	22
39	35265.84	93575.21	37687.16	265342.38	106865.91	283560.54	21
40	35293.06	93564.95	37720.38	265108.67	106877.63	283341.85	20
41	35320.27	93554.68	37753.61	264875.31	106889.36	283123.53	19
42	35347.48	93544.40	37786.85	264642.32	106901.10	282905.56	18
43	35374.69	93534.11	37820.10	264409.69	106912.86	282687.96	17
44	35401.90	93523.82	37853.35	264177.41	106924.63	282470.71	16
45	35429.10	93513.52	37886.61	263945.49	106936.41	282253.82	15
46	35456.30	93503.21	37919.88	263713.92	106948.20	282037.29	14
47	35483.50	93492.89	37953.16	263482.71	106960.00	281821.11	13
48	35510.70	93482.56	37986.44	263251.86	106971.82	281605.29	12
49	35537.89	93472.23	38019.73	263021.36	106983.64	281389.82	11
50	35565.08	93461.89	38053.03	262791.21	106995.48	281174.71	10
51	35592.26	93451.54	38086.33	262561.41	107007.33	280959.95	9
52	35619.44	93441.18	38119.64	262331.96	107019.19	280745.54	8
53	35646.62	93430.82	38152.96	262102.86	107031.06	280531.48	7
54	35673.80	93420.45	38186.29	261874.11	107042.95	280317.77	6
55	35700.97	93410.07	38219.62	261645.71	107054.84	280104.41	5
56	35728.14	93399.68	38252.96	261417.66	107066.75	279891.40	4
57	35755.31	93389.28	38286.31	261189.95	107078.67	279678.73	3
58	35782.48	93378.87	38319.67	260962.59	107090.60	279466.41	2
59	35809.64	93368.46	38353.03	260735.58	107102.54	279254.44	1
60	35836.79	93358.04	38386.40	260508.91	107114.50	279042.81	0

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21	Sinus		Tangens		Secans		
0	35836.79	93358.04	38386.40	260508.91	107114.50	279042.81	60
1	35863.95	93347.61	38419.78	260282.58	107126.47	278831.53	59
2	35891.10	93337.17	38453.17	260056.59	107138.44	278620.59	58
3	35918.25	93326.73	38486.56	259830.95	107150.43	278409.99	57
4	35945.40	93316.28	38519.96	259605.64	107162.44	278199.73	56
5	35972.54	93305.82	38553.37	259380.68	107174.45	277989.82	55
6	35999.68	93295.35	38586.79	259156.06	107186.47	277780.24	54
7	36026.82	93284.87	38620.21	258931.77	107198.51	277571.00	53
8	36053.95	93274.39	38653.64	258707.82	107210.56	277362.11	52
9	36081.08	93263.90	38687.08	258484.21	107222.62	277153.55	51
10	36108.21	93253.40	38720.53	258260.94	107234.69	276945.32	50
11	36135.33	93242.89	38753.98	258038.00	107246.78	276737.43	49
12	36162.46	93232.38	38787.44	257815.39	107258.87	276529.88	48
13	36189.58	93221.86	38820.91	257593.12	107270.98	276322.66	47
14	36216.69	93211.33	38854.39	257371.18	107283.10	276115.78	46
15	36243.80	93200.79	38887.87	257149.57	107295.23	275909.23	45
16	36270.91	93190.24	38921.36	256928.30	107307.37	275703.01	44
17	36298.02	93179.68	38954.86	256707.35	107319.53	275497.12	43
18	36325.12	93169.12	38988.37	256486.74	107331.70	275291.57	42
19	36352.22	93158.55	39021.89	256266.45	107343.88	275086.34	41
20	36379.32	93147.97	39055.41	256046.49	107356.07	274881.44	40
21	36406.41	93137.38	39088.94	255826.86	107368.27	274676.87	39
22	36433.50	93126.79	39122.48	255607.56	107380.48	274472.63	38
23	36460.59	93116.19	39156.02	255388.58	107392.71	274268.71	37
24	36487.68	93105.58	39189.57	255169.92	107404.95	274065.12	36
25	36514.76	93094.96	39223.13	254951.60	107417.20	273861.86	35
26	36541.84	93084.33	39256.70	254733.59	107429.46	273658.92	34
27	36568.92	93073.70	39290.28	254515.91	107441.73	273456.30	33
28	36595.99	93063.06	39323.86	254298.55	107454.02	273254.00	32
29	36623.06	93052.41	39357.45	254081.51	107466.31	273052.03	31
30	36650.13	93041.75	39391.05	253864.79	107478.62	272850.38	30

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TANGENTIVM & SECANTIVM .

21	Sinus		Tangens		Secans		
30	36650.13	93041.75	39391.05	253864.79	107478.62	272850.38	30
31	36677.19	93051.09	39424.66	253648.39	107490.95	272649.05	29
32	36704.25	93020.42	39458.27	253432.31	107503.28	272448.04	28
33	36731.31	93009.74	39491.89	253216.55	107515.62	272247.35	27
34	36758.36	92999.05	39525.52	253001.11	107527.98	272046.98	26
35	36785.41	92988.35	39559.16	252785.98	107540.35	271846.93	25
36	36812.46	92977.65	39592.80	252571.17	107552.73	271647.19	24
37	36839.50	92966.94	39626.45	252356.67	107565.12	271447.77	23
38	36866.54	92956.22	39660.11	252142.49	107577.53	271248.66	22
39	36893.58	92945.49	39693.78	251928.63	107589.95	271049.87	21
40	36920.62	92934.75	39727.46	251715.07	107602.37	270851.39	20
41	36947.65	92924.01	39761.14	251501.83	107614.81	270653.23	19
42	36974.68	92913.26	39794.83	251288.90	107627.27	270455.38	18
43	37001.70	92902.50	39828.53	251076.29	107639.73	270257.84	17
44	37028.72	92891.73	39862.24	250863.98	107652.21	270060.61	16
45	37055.74	92880.95	39895.96	250651.98	107664.70	269863.70	15
46	37082.76	92870.17	39929.68	250440.29	107677.20	269667.09	14
47	37109.77	92859.38	39963.41	250228.91	107689.71	269470.79	13
48	37136.78	92848.58	39997.15	250017.84	107702.24	269274.80	12
49	37163.79	92837.77	40030.89	249807.07	107714.77	269079.12	11
50	37190.80	92826.96	40064.65	249596.61	107727.32	268883.74	10
51	37217.80	92816.14	40098.41	249386.45	107739.88	268688.67	9
52	37244.80	92805.31	40132.18	249176.60	107752.46	268493.91	8
53	37271.79	92794.47	40165.96	248967.06	107765.04	268299.45	7
54	37298.78	92783.62	40199.75	248757.81	107777.64	268105.30	6
55	37325.77	92772.77	40233.54	248548.87	107790.25	267911.45	5
56	37352.75	92761.91	40267.34	248340.23	107802.87	267717.90	4
57	37379.73	92751.04	40301.15	248131.90	107815.50	267524.65	3
58	37406.71	92740.16	40334.97	247923.86	107828.15	267331.70	2
59	37433.69	92729.28	40368.79	247716.12	107840.80	267139.06	1
60	37460.66	92718.39	40402.62	247508.69	107853.47	266946.72	0
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CANON SIN VVM

22	Sinus		Tangens		Secans		
0	37460.66	92718.39	40402.62	247508.69	107853.47	266946.72	60
1	37487.63	92707.49	40436.46	247301.55	107866.16	266754.67	59
2	37514.59	92696.58	40470.31	247094.70	107878.85	266562.92	58
3	37541.56	92685.66	40504.17	246888.16	107891.56	266371.48	57
4	37568.52	92674.73	40538.04	246681.91	107904.27	266180.33	56
5	37595.47	92663.80	40571.91	246475.96	107917.00	265989.47	55
6	37622.43	92652.86	40605.79	246270.30	107929.75	265798.91	54
7	37649.38	92641.91	40639.68	246064.94	107942.50	265608.65	53
8	37676.32	92630.96	40673.58	245859.87	107955.27	265418.68	52
9	37703.27	92620.00	40707.48	245655.09	107968.05	265229.01	51
10	37730.21	92609.03	40741.39	245450.61	107980.84	265039.62	50
11	37757.14	92598.05	40775.31	245246.42	107993.64	264850.54	49
12	37784.08	92587.06	40809.24	245042.52	108006.46	264661.74	48
13	37811.01	92576.06	40843.18	244838.91	108019.28	264473.23	47
14	37837.94	92565.06	40877.13	244635.59	108032.12	264285.02	46
15	37864.86	92554.05	40911.08	244432.56	108044.97	264097.09	45
16	37891.78	92543.03	40945.04	244229.82	108057.84	263909.46	44
17	37918.70	92532.00	40979.01	244027.36	108070.71	263722.11	43
18	37945.62	92520.97	41012.99	243825.19	108083.60	263535.05	42
19	37972.53	92509.93	41046.97	243623.31	108096.50	263348.28	41
20	37999.44	92498.88	41080.97	243421.72	108109.42	263161.80	40
21	38026.34	92487.82	41114.97	243220.41	108122.34	262975.60	39
22	38053.24	92476.75	41148.98	243019.38	108135.28	262789.69	38
23	38080.14	92465.68	41183.00	242818.64	108148.23	262604.06	37
24	38107.04	92454.60	41217.03	242618.19	108161.19	262418.72	36
25	38133.93	92443.51	41251.06	242418.01	108174.17	262233.66	35
26	38160.82	92432.41	41285.10	242218.12	108187.15	262048.88	34
27	38187.70	92421.31	41319.15	242018.51	108200.15	261864.39	33
28	38214.59	92410.20	41353.21	241819.18	108213.16	261680.18	32
29	38241.47	92399.08	41387.28	241620.13	108226.18	261496.24	31
30	38268.34	92387.95	41421.36	241421.36	108239.22	261312.59	30

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TANGENTIVM & SECANTIVM.

22	Sinus	Tangens	Secans	
30	38268.34	92387.95	41421.36	241421.36
31	38295.22	92376.81	41455.44	241222.86
32	38322.09	92365.67	41489.53	241024.65
33	38348.95	92354.52	41523.63	240826.72
34	38375.82	92343.36	41557.74	240629.06
35	38402.68	92332.19	41591.86	240431.68
36	38429.53	92321.02	41625.99	240234.57
37	38456.39	92309.84	41660.12	240037.74
38	38483.24	92298.65	41694.26	239841.18
39	38510.08	92287.45	41728.41	239644.90
40	38536.93	92276.24	41762.57	239448.89
41	38563.77	92265.03	41796.74	239253.16
42	38590.60	92253.81	41830.91	239057.69
43	38617.44	92242.58	41865.09	238862.50
44	38644.27	92231.34	41899.28	238667.58
45	38671.10	92220.09	41933.48	238472.93
46	38697.92	92208.84	41967.69	238278.55
47	38724.74	92197.58	42001.91	238084.44
48	38751.56	92186.31	42036.13	237890.60
49	38778.37	92175.03	42070.36	237697.03
50	38805.18	92163.75	42104.60	237503.72
51	38831.99	92152.46	42138.85	237310.68
52	38858.80	92141.16	42173.11	237117.91
53	38885.60	92129.85	42207.38	236925.40
54	38912.39	92118.54	42241.66	236733.16
55	38939.19	92107.22	42275.94	236541.18
56	38965.98	92095.89	42310.23	236349.46
57	38992.77	92084.55	42344.53	236158.01
58	39019.55	92073.20	42378.84	235966.83
59	39046.33	92061.85	42413.16	235775.90
60	39073.11	92050.49	42447.49	235585.24
				108239.22
				261312.59
				108252.27
				261129.22
				108265.33
				260946.13
				108278.40
				260763.32
				108291.49
				260580.78
				108304.58
				260398.52
				108317.69
				260216.54
				108330.81
				260034.84
				108343.95
				259853.41
				108357.09
				259672.25
				108370.25
				259491.37
				108383.42
				259310.77
				108396.61
				259130.43
				108409.80
				258950.37
				108423.01
				258770.58
				108436.23
				258591.07
				108449.47
				258411.82
				108462.71
				258232.84
				108475.97
				258054.14
				108489.24
				257875.70
				108502.52
				257697.53
				108515.82
				257519.63
				108529.13
				257341.99
				108542.45
				257164.62
				108555.78
				256987.52
				108569.12
				256810.69
				108582.48
				256634.12
				108595.85
				256457.81
				108609.24
				256281.76
				108622.63
				256105.99
				108636.04
				255930.47

CANON SINVM

23	Sinus		Tangens		Secans		
0	39073.11	92050.49	42447.49	235585.24	108636.04	255930.47	60
1	39099.89	92039.12	42481.82	235394.83	108649.46	255755.21	59
2	39126.66	92027.74	42516.16	235204.69	108662.89	255580.22	58
3	39153.43	92016.35	42550.51	235014.81	108676.34	255405.48	57
4	39180.19	92004.96	42584.87	234825.19	108689.79	255231.01	56
5	39206.95	91993.56	42619.24	234635.82	108703.26	255056.80	55
6	39233.71	91982.15	42653.62	234446.72	108716.75	254882.84	54
7	39260.47	91970.73	42688.00	234257.87	108730.24	254709.15	53
8	39287.22	91959.31	42722.39	234069.28	108743.75	254535.71	52
9	39313.97	91947.88	42756.79	233880.95	108757.27	254362.53	51
10	39340.71	91936.44	42791.20	233692.87	108770.80	254189.61	50
11	39367.45	91924.99	42825.62	233505.05	108784.35	254016.94	49
12	39394.19	91913.53	42860.05	233317.48	108797.91	253844.53	48
13	39420.93	91902.07	42894.49	233130.17	108811.48	253672.38	47
14	39447.66	91890.60	42928.94	232943.11	108825.06	253500.48	46
15	39474.39	91879.12	42963.39	232756.30	108838.66	253328.83	45
16	39501.11	91867.63	42997.85	232569.75	108852.27	253157.44	44
17	39527.83	91856.14	43032.32	232383.45	108865.89	252986.30	43
18	39554.55	91844.64	43066.80	232197.40	108879.52	252815.41	42
19	39581.27	91833.13	43101.29	232011.60	108893.17	252644.78	41
20	39607.98	91821.61	43135.79	231826.06	108906.83	252474.40	40
21	39634.69	91810.08	43170.30	231640.76	108920.50	252304.26	39
22	39661.39	91798.55	43204.81	231455.71	108934.18	252134.38	38
23	39688.09	91787.01	43239.33	231270.91	108947.88	251964.75	37
24	39714.79	91775.46	43273.86	231086.36	108961.59	251795.37	36
25	39741.48	91763.90	43308.40	230902.06	108975.31	251626.24	35
26	39768.17	91752.34	43342.95	230718.01	108989.04	251457.35	34
27	39794.86	91740.77	43377.51	230534.20	109002.79	251288.71	33
28	39821.55	91729.19	43412.08	230350.64	109016.55	251120.32	32
29	39848.23	91717.60	43446.66	230167.32	109030.32	250952.18	31
30	39874.91	91706.01	43481.24	229984.25	109044.11	250784.28	30
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TANGENTIVM & SECANTIVM

23	Sinus		Tangens		Secans		
30	39874.91	91706.01	43481.24	229984.25	109044.11	250784.28	30
31	39901.58	91694.41	43515.83	229801.43	109057.91	250616.63	29
32	39928.25	91682.80	43550.43	229618.85	109071.72	250449.23	28
33	39954.92	91671.18	43585.04	229436.51	109085.54	250282.07	27
34	39981.58	91659.55	43619.66	229254.42	109099.38	250115.15	26
35	40008.24	91647.91	43654.29	229072.57	109113.23	249948.47	25
36	40034.90	91636.27	43688.93	228890.96	109127.09	249782.04	24
37	40061.56	91624.62	43723.58	228709.59	109140.97	249615.86	23
38	40088.21	91612.96	43758.23	228528.46	109154.86	249449.91	22
39	40114.86	91601.30	43792.89	228347.58	109168.76	249284.21	21
40	40141.50	91589.63	43827.56	228166.93	109182.67	249118.74	20
41	40168.14	91577.95	43862.24	227986.53	109196.59	248953.52	19
42	40194.78	91566.26	43896.93	227806.36	109210.53	248788.54	18
43	40221.41	91554.56	43931.63	227626.43	109224.48	248623.80	17
44	40248.04	91542.86	43966.34	227446.74	109238.45	248459.29	16
45	40274.67	91531.15	44001.06	227267.29	109252.43	248295.03	15
46	40301.29	91519.43	44035.78	227088.07	109266.42	248131.00	14
47	40327.91	91507.70	44070.51	226909.09	109280.42	247967.21	13
48	40354.53	91495.96	44105.25	226730.35	109294.44	247803.66	12
49	40381.14	91484.22	44140.00	226551.84	109308.47	247640.34	11
50	40407.75	91472.47	44174.76	226373.57	109322.51	247477.26	10
51	40434.36	91460.71	44209.53	226195.53	109336.56	247314.42	9
52	40460.96	91448.95	44244.31	226017.73	109350.63	247151.81	8
53	40487.56	91437.18	44279.10	225840.16	109364.71	246989.43	7
54	40514.16	91425.40	44313.90	225662.83	109378.80	246827.29	6
55	40540.75	91413.61	44348.71	225485.72	109392.91	246665.38	5
56	40567.34	91401.81	44383.53	225308.85	109407.03	246503.71	4
57	40593.93	91390.00	44418.35	225132.21	109421.16	246342.27	3
58	40620.51	91378.19	44453.18	224955.80	109435.30	246181.06	2
59	40647.09	91366.37	44488.02	224779.62	109449.46	246020.08	1
60	40673.66	91354.54	44522.87	224603.68	109463.63	245859.33	0

CANON SINVM

24	Sinus		Tangens		Secans		
0	40673.66	91354.54	44522.87	224603.68	109463.63	245859.33	60
1	40700.23	91342.71	44557.73	224427.96	109477.81	245698.82	59
2	40726.80	91330.87	44592.60	224252.47	109492.01	245538.53	58
3	40753.37	91319.02	44627.48	224077.21	109506.22	245378.48	57
4	40779.93	91307.16	44662.37	223902.18	109520.44	245218.65	56
5	40806.49	91295.29	44697.27	223727.38	109534.67	245059.05	55
6	40833.05	91283.42	44732.17	223552.80	109548.92	244899.68	54
7	40859.60	91271.54	44767.08	223378.45	109563.18	244740.54	53
8	40886.15	91259.65	44802.00	223204.33	109577.46	244581.63	52
9	40912.69	91247.75	44836.93	223030.43	109591.74	244422.94	51
10	40939.23	91235.84	44871.87	222856.76	109606.04	244264.48	50
11	40965.77	91223.93	44906.82	222683.31	109620.36	244106.24	49
12	40992.30	91212.01	44941.78	222510.09	109634.68	243948.23	48
13	41018.83	91200.08	44976.75	222337.09	109649.02	243790.45	47
14	41045.36	91188.14	45011.73	222164.32	109663.37	243632.89	46
15	41071.89	91176.20	45046.72	221991.77	109677.74	243475.55	45
16	41098.41	91164.25	45081.72	221819.44	109692.12	243318.44	44
17	41124.93	91152.29	45116.73	221647.33	109706.51	243161.55	43
18	41151.44	91140.32	45151.74	221475.45	109720.91	243004.89	42
19	41177.95	91128.35	45186.76	221303.79	109735.33	242848.44	41
20	41204.46	91116.37	45221.79	221132.34	109749.76	242692.22	40
21	41230.96	91104.38	45256.83	220961.12	109764.20	242536.22	39
22	41257.46	91092.38	45291.88	220790.12	109778.66	242380.44	38
23	41283.95	91080.38	45326.94	220619.34	109793.13	242224.88	37
24	41310.44	91068.37	45362.01	220448.78	109807.61	242069.54	36
25	41336.93	91056.35	45397.09	220278.43	109822.11	241914.42	35
26	41363.42	91044.32	45432.18	220108.31	109836.62	241759.52	34
27	41389.90	91032.28	45467.28	219938.40	109851.14	241604.84	33
28	41416.38	91020.24	45502.39	219768.71	109865.68	241450.38	32
29	41442.85	91008.19	45537.51	219599.23	109880.23	241296.13	31
30	41469.32	90996.13	45572.64	219429.97	109894.79	241142.10	30

TANGENTIVM & SECANTIVM.

24	Sinus	Tangens	Secans
30	41469.32	90996.13	45572.64
31	41495.79	90984.06	219429.97
32	41522.26	90971.98	45607.77
33	41548.72	90959.90	45642.91
34	41575.18	90947.81	219092.10
35	41601.63	90935.71	45678.06
36	41628.08	90923.61	218923.49
37	41654.53	90911.50	45713.22
38	41680.97	90899.38	218755.10
39	41707.41	90887.25	45748.39
40	41733.85	90875.11	218586.91
41	41760.28	90862.97	218418.94
42	41786.71	90850.82	218251.19
43	41813.13	90838.66	45818.76
44	41839.55	90826.49	218083.64
45	41865.97	90814.32	45889.17
46	41892.39	90802.14	217916.31
47	41918.80	90789.95	45924.39
48	41945.21	90777.75	217749.20
49	41971.61	90765.54	45959.62
50	41998.01	90753.33	217582.29
51	42024.41	90741.11	45994.86
52	42050.80	90728.88	217415.59
53	42077.19	90716.64	46030.11
54	42103.58	90704.40	217249.11
55	42129.96	90692.15	46065.37
56	42156.34	90679.89	217082.83
57	42182.72	90667.62	46100.64
58	42209.09	90655.35	216916.77
59	42235.46	90643.07	46135.91
60	42261.83	90630.78	216750.91
			46171.19
			216585.27
			46206.48
			216419.83
			46241.78
			216254.60
			46277.09
			216089.58
			46312.42
			215924.76
			46347.76
			215760.15
			46383.11
			215595.75
			46418.46
			215431.56
			46453.82
			215267.57
			46489.19
			215103.78
			46524.57
			214940.20
			46559.96
			214776.83
			46595.36
			214613.66
			46630.77
			214450.69
			109894.79
			241142.10
			109909.36
			240988.29
			109923.95
			240834.69
			109938.55
			240681.32
			109953.17
			240528.15
			109967.79
			240375.20
			109982.43
			240222.47
			109997.09
			240069.95
			110011.76
			239917.64
			110026.44
			239765.55
			110041.13
			239613.67
			110055.84
			239462.01
			110070.56
			239310.55
			110085.29
			239159.31
			110100.04
			239008.28
			110114.80
			238857.46
			110129.57
			238706.85
			110144.36
			238556.45
			110159.16
			238406.25
			110173.97
			238256.27
			110188.79
			238106.50
			110203.63
			237956.93
			110218.49
			237807.58
			110233.35
			237658.43
			110248.23
			237509.49
			110263.13
			237360.75
			110278.03
			237212.22
			110292.95
			237063.90
			110307.89
			236915.78
			110322.83
			236767.87
			110337.79
			236620.16

CANON SINVVVM

25	Sinus	Tangens	Secans
0	42261.83	90630.78	46630.77
1	42288.19	90618.48	46666.19
2	42314.55	90606.17	46701.62
3	42340.90	90593.86	46737.06
4	42367.25	90581.54	46772.51
5	42393.60	90569.21	46807.97
6	42419.94	90556.88	46843.43
7	42446.28	90544.54	46878.90
8	42472.62	90532.19	46914.38
9	42498.95	90519.83	46949.88
10	42525.28	90507.46	46985.39
11	42551.61	90495.09	47020.90
12	42577.93	90482.71	47056.43
13	42604.25	90470.32	47091.96
14	42630.56	90457.92	47127.51
15	42656.87	90445.51	47163.06
16	42683.18	90433.10	47198.63
17	42709.49	90420.68	47234.20
18	42735.79	90408.25	47269.78
19	42762.09	90395.82	47305.38
20	42788.38	90383.38	47340.98
21	42814.67	90370.93	47376.59
22	42840.95	90358.47	47412.22
23	42867.23	90346.00	47447.85
24	42893.51	90333.53	47483.49
25	42919.79	90321.05	47519.14
26	42946.06	90308.56	47554.81
27	42972.33	90296.06	47590.48
28	42998.59	90283.56	47626.16
29	43024.85	90271.05	47661.85
30	43051.11	90258.53	47697.55
			214450.69
			214287.93
			214125.37
			213963.01
			213800.85
			213638.89
			213477.14
			213315.59
			213154.23
			212993.08
			212832.13
			212671.37
			212510.82
			212350.46
			212190.30
			212030.34
			211870.57
			211711.01
			211551.64
			211392.46
			211233.48
			211074.70
			210916.11
			210757.71
			210599.51
			210441.50
			210283.69
			210126.07
			209968.64
			209811.40
			209654.36
			110337.79
			110352.77
			110367.75
			110382.75
			110397.77
			110412.79
			110427.83
			110442.89
			110457.95
			235738.18
			235591.89
			235445.81
			235299.92
			235154.24
			235008.75
			234863.47
			234718.38
			234573.49
			234428.80
			234284.31
			234140.02
			233995.93
			233852.03
			233708.33
			233564.82
			233421.52
			233278.40
			233135.48
			232992.76
			232850.23
			232707.90
			232565.75
			232423.81
			232282.05

TANGENTIVM & SECANTIVM.

25	Sinus		Tangens		Secans		
30	43051.11	90258.53	47697.55	209654.36	110792.85	232282.05	30
31	43077.36	90246.00	47733.26	209497.51	110808.23	232140.49	29
32	43108.61	90233.47	47768.99	209340.84	110823.63	231999.11	28
33	43129.86	90220.93	47804.72	209184.37	110839.03	231857.94	27
34	43156.10	90208.38	47840.46	209028.09	110854.45	231716.95	26
35	43182.34	90195.82	47876.21	208872.00	110869.89	231576.15	25
36	43208.57	90183.25	47911.97	208716.10	110885.33	231435.54	24
37	43234.80	90170.68	47947.74	208560.39	110900.79	231295.13	23
38	43261.03	90158.10	47983.52	208404.86	110916.27	231154.90	22
39	43287.26	90145.51	48019.32	208249.53	110931.76	231014.86	21
40	43313.48	90132.91	48055.12	208094.38	110947.26	230875.01	20
41	43339.70	90120.31	48090.93	207939.42	110962.77	230735.35	19
42	43365.91	90107.70	48126.75	207784.65	110978.30	230595.88	18
43	43392.12	90095.08	48162.58	207630.07	110993.85	230456.60	17
44	43418.33	90082.45	48198.42	207475.67	111009.41	230317.51	16
45	43444.53	90069.82	48234.27	207321.46	111024.98	230178.60	15
46	43470.73	90057.18	48270.14	207167.43	111040.56	230039.88	14
47	43496.92	90044.53	48306.01	207013.59	111056.16	229901.34	13
48	43523.11	90031.87	48341.89	206859.93	111071.77	229762.99	12
49	43549.30	90019.21	48377.78	206706.46	111087.40	229624.83	11
50	43575.48	90006.54	48413.68	206553.18	111103.04	229486.85	10
51	43601.66	89993.86	48449.59	206400.08	111118.69	229349.06	9
52	43627.84	89981.17	48485.52	206247.16	111134.36	229211.45	8
53	43654.01	89968.48	48521.45	206094.42	111150.04	229074.03	7
54	43680.18	89955.78	48557.39	205941.87	111165.73	228936.79	6
55	43706.34	89943.07	48593.34	205789.50	111181.44	228799.74	5
56	43732.50	89930.35	48629.31	205637.32	111197.16	228662.86	4
57	43758.66	89917.62	48665.28	205485.31	111212.90	228526.18	3
58	43784.82	89904.89	48701.26	205333.49	111228.65	228389.67	2
59	43810.97	89892.15	48737.26	205181.84	111244.42	228253.34	1
60	43837.12	89879.40	48773.26	205030.38	111260.19	228117.20	0
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CANON SINVM

26	Sinus	Tangens	Secans				
0	43837.12	89879.40	48773.26	205030.38	111260.19	228117.20	60
1	43863.26	89866.65	48809.27	204879.10	111275.98	227981.24	59
2	43889.40	89853.89	48845.30	204728.00	111291.79	227845.46	58
3	43915.53	89841.12	48881.33	204577.08	111307.61	227709.86	57
4	43941.66	89828.34	48917.37	204426.34	111323.45	227574.45	56
5	43967.79	89815.55	48953.43	204275.78	111339.30	227439.21	55
6	43993.92	89802.76	48989.49	204125.40	111355.16	227304.15	54
7	44020.04	89789.96	49025.57	203975.19	111371.03	227169.27	53
8	44046.16	89777.15	49061.66	203825.17	111386.92	227034.57	52
9	44072.27	89764.33	49097.75	203675.32	111402.82	226900.05	51
10	44098.38	89751.51	49133.86	203525.65	111418.74	226765.71	50
11	44124.48	89738.68	49169.97	203376.15	111434.67	226631.55	49
12	44150.58	89725.84	49206.10	203226.83	111450.62	226497.56	48
13	44176.68	89712.99	49242.24	203077.69	111466.58	226363.75	47
14	44202.78	89700.13	49278.38	202928.73	111482.55	226230.12	46
15	44228.87	89687.27	49314.54	202779.94	111498.54	226096.67	45
16	44254.96	89674.40	49350.71	202631.33	111514.54	225963.39	44
17	44281.04	89661.52	49386.89	202482.89	111530.56	225830.29	43
18	44307.12	89648.64	49423.08	202334.62	111546.59	225697.36	42
19	44333.20	89635.75	49459.28	202186.53	111562.63	225564.61	41
20	44359.27	89622.85	49495.49	202038.62	111578.69	225432.04	40
21	44385.34	89609.94	49531.71	201890.88	111594.76	225299.64	39
22	44411.40	89597.03	49567.94	201743.31	111610.84	225167.41	38
23	44437.46	89584.11	49604.18	201595.92	111626.94	225035.36	37
24	44463.52	89571.18	49640.43	201448.69	111643.06	224903.48	36
25	44489.57	89558.24	49676.69	201301.64	111659.19	224771.78	35
26	44515.62	89545.29	49712.97	201154.77	111675.33	224640.24	34
27	44541.67	89532.34	49749.25	201008.06	111691.49	224508.89	33
28	44567.71	89519.38	49785.54	200861.53	111707.66	224377.70	32
29	44593.75	89506.41	49821.85	200715.16	111723.84	224246.69	31
30	44619.78	89493.43	49858.16	200568.97	111740.04	224115.84	30

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TANGENTIVM & SECANTIVM.

26	Sinus	Tangens	Secans				
30	44619.78	89493.43	49858.16	200568.97	111740.04	224115.84	30
31	44645.81	89480.45	49894.49	200422.95	111756.25	223985.17	29
32	44671.84	89467.46	49930.82	200277.10	111772.48	223854.67	28
33	44697.86	89454.46	49967.17	200131.42	111788.72	223724.35	27
34	44723.88	89441.45	50003.52	199985.90	111804.98	223594.19	26
35	44749.90	89428.44	50039.89	199840.56	111821.25	223464.20	25
36	44775.92	89415.42	50076.27	199695.39	111837.53	223334.38	24
37	44801.92	89402.39	50112.66	199550.38	111853.83	223204.74	23
38	44827.92	89389.36	50149.06	199405.54	111870.14	223075.26	22
39	44853.92	89376.32	50185.47	199260.87	111886.47	222945.95	21
40	44879.92	89363.27	50221.89	199116.37	111902.81	222816.81	20
41	44905.91	89350.21	50258.32	198972.04	111919.16	222687.83	19
42	44931.90	89337.14	50294.76	198827.87	111935.53	222559.03	18
43	44957.89	89324.06	50331.21	198683.87	111951.91	222430.39	17
44	44983.87	89310.98	50367.67	198540.03	111968.31	222301.92	16
45	45009.85	89297.89	50404.15	198396.36	111984.72	222173.62	15
46	45035.82	89284.79	50440.63	198252.86	112001.15	222045.48	14
47	45061.79	89271.69	50477.13	198109.52	112017.59	221917.51	13
48	45087.76	89258.58	50513.63	197966.35	112034.05	221789.71	12
49	45113.72	89245.46	50550.15	197823.34	112050.52	221662.07	11
50	45139.68	89232.33	50586.68	197680.50	112067.00	221534.60	10
51	45165.63	89219.20	50623.22	197537.82	112083.50	221407.30	9
52	45191.58	89206.06	50659.77	197395.31	112100.01	221280.16	8
53	45217.53	89192.91	50696.33	197252.96	112116.53	221153.18	7
54	45243.47	89179.75	50732.90	197110.77	112133.07	221026.37	6
55	45269.41	89166.59	50769.48	196968.74	112149.63	220899.72	5
56	45295.35	89153.42	50806.07	196826.88	112166.20	220773.23	4
57	45321.28	89140.24	50842.67	196685.18	112182.78	220646.91	3
58	45347.21	89127.05	50879.28	196543.64	112199.38	220520.75	2
59	45373.13	89113.85	50915.91	196402.27	112216.00	220394.76	1
60	45399.05	89100.65	50952.54	196261.05	112232.62	220268.93	0

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CANON SIN VVM

27	Sinus	Tangens	Secans				
0	45399.05	89100.65	50952.54	196261.05	112232.62	220268.93	60
1	45424.97	89087.44	50989.19	196120.00	112249.26	220143.26	59
2	45450.88	89074.22	51025.85	195979.10	112265.92	220017.75	58
3	45476.79	89061.00	51062.52	195838.37	112282.59	219892.40	57
4	45502.69	89047.77	51099.19	195697.80	112299.28	219767.21	56
5	45528.59	89034.53	51135.88	195557.39	112315.98	219642.19	55
6	45554.49	89021.28	51172.59	195417.13	112332.69	219517.33	54
7	45580.38	89008.02	51209.30	195277.04	112349.42	219392.62	53
8	45606.27	88994.76	51246.02	195137.11	112366.16	219268.08	52
9	45632.16	88981.49	51282.75	194997.33	112382.92	219143.70	51
10	45658.04	88968.21	51319.50	194857.71	112399.69	219019.47	50
11	45683.92	88954.93	51356.25	194718.26	112416.48	218895.41	49
12	45709.79	88941.64	51393.02	194578.96	112433.28	218771.50	48
13	45735.66	88928.34	51429.80	194439.81	112450.10	218647.75	47
14	45761.53	88915.03	51466.58	194300.83	112466.93	218524.17	46
15	45787.39	88901.71	51503.38	194162.00	112483.77	218400.74	45
16	45813.25	88888.39	51540.19	194023.33	112500.63	218277.46	44
17	45839.10	88875.06	51577.02	193884.81	112517.50	218154.35	43
18	45864.95	88861.72	51613.85	193746.45	112534.39	218031.39	42
19	45890.80	88848.37	51650.69	193608.25	112551.29	217908.59	41
20	45916.64	88835.02	51687.55	193470.20	112568.21	217785.94	40
21	45942.48	88821.66	51724.41	193332.31	112585.14	217663.46	39
22	45968.32	88808.29	51761.29	193194.57	112602.09	217541.12	38
23	45994.15	88794.92	51798.18	193056.98	112619.05	217418.95	37
24	46019.98	88781.54	51835.08	192919.56	112636.03	217296.93	36
25	46045.80	88768.15	51871.99	192782.28	112653.02	217175.06	35
26	46071.62	88754.75	51908.91	192645.16	112670.03	217053.35	34
27	46097.44	88741.34	51945.84	192508.19	112687.05	216931.80	33
28	46123.25	88727.93	51982.78	192371.38	112704.08	216810.40	32
29	46149.06	88714.51	52019.74	192234.72	112721.13	216689.15	31
30	46174.86	88701.08	52056.70	192098.21	112738.19	216568.06	30

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TANGENTIVM & SECANTIVM.

27	Sinus		Tangens		Secans	
30	46174.86	88701.08	52056.70	192098.21	112738.19	216568.06
31	46200.66	88687.64	52093.68	191961.86	112755.27	216447.12
32	46226.46	88674.20	52130.67	191825.65	112772.37	216326.33
33	46252.25	88660.75	52167.67	191689.60	112789.48	216205.70
34	46278.04	88647.29	52204.68	191553.70	112806.60	216085.22
35	46303.82	88633.83	52241.70	191417.95	112823.74	215964.89
36	46329.60	88620.36	52278.74	191282.36	112840.89	215844.71
37	46355.38	88606.88	52315.78	191146.91	112858.06	215724.69
38	46381.15	88593.39	52352.84	191011.62	112875.24	215604.82
39	46406.92	88579.89	52389.90	190876.47	112892.44	215485.10
40	46432.69	88566.39	52426.98	190741.47	112909.65	215365.53
41	46458.45	88552.88	52464.07	190606.63	112926.88	215246.11
42	46484.21	88539.36	52501.17	190471.93	112944.12	215126.84
43	46509.96	88525.83	52538.29	190337.38	112961.37	215007.72
44	46535.71	88512.30	52575.41	190202.99	112978.64	214888.75
45	46561.45	88498.76	52612.54	190068.74	112995.93	214769.93
46	46587.19	88485.21	52649.69	189934.64	113013.23	214651.27
47	46612.93	88471.66	52686.85	189800.68	113030.55	214532.75
48	46638.66	88458.10	52724.02	189666.88	113047.88	214414.37
49	46664.39	88444.53	52761.20	189533.22	113065.22	214296.15
50	46690.12	88430.95	52798.39	189399.71	113082.58	214178.08
51	46715.84	88417.36	52835.59	189266.34	113099.96	214060.15
52	46741.56	88403.77	52872.81	189133.13	113117.35	213942.38
53	46767.27	88390.17	52910.04	189000.06	113134.75	213824.75
54	46792.98	88376.56	52947.27	188867.13	113152.17	213707.26
55	46818.69	88362.94	52984.52	188734.36	113169.61	213589.93
56	46844.39	88349.32	53021.78	188601.72	113187.06	213472.74
57	46870.09	88335.69	53059.06	188469.24	113204.52	213355.70
58	46895.78	88322.05	53096.34	188336.90	113222.00	213238.80
59	46921.47	88308.41	53133.64	188204.70	113239.50	213122.05
60	46947.16	88294.76	53170.94	188072.65	113257.01	213005.45
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CANON SIN VVM

28	Sinus	Tangens	Secans	
0	46947.16 88294.76	53170.94 188072.65	113257.01 213005.45	60
1	46972.84 88281.10	53208.26 187940.74	113274.53 212888.99	59
2	46998.52 88267.43	53245.59 187808.98	113292.07 212772.67	58
3	47024.19 88253.75	53282.93 187677.36	113309.62 212656.51	57
4	47049.86 88240.07	53320.29 187545.88	113327.19 212540.48	56
5	47075.53 88226.38	53357.65 187414.55	113344.78 212424.60	55
6	47101.19 88212.68	53395.03 187283.36	113362.38 212308.87	54
7	47126.85 88198.98	53432.42 187152.31	113379.99 212193.28	53
8	47152.50 88185.27	53469.82 187021.41	113397.62 212077.83	52
9	47178.15 88171.55	53507.23 186890.64	113415.27 211962.53	51
10	47203.80 88157.82	53544.65 186760.03	113432.93 211847.37	50
11	47229.44 88144.09	53582.08 186629.55	113450.60 211732.35	49
12	47255.08 88130.35	53619.53 186499.21	113468.29 211617.48	48
13	47280.71 88116.60	53656.99 186369.02	113486.00 211502.74	47
14	47306.34 88102.84	53694.46 186238.96	113503.72 211388.15	46
15	47331.97 88089.07	53731.94 186109.05	113521.46 211273.71	45
16	47357.59 88075.30	53769.43 185979.28	113539.21 211159.40	44
17	47383.21 88061.52	53806.94 185849.65	113556.98 211045.23	43
18	47408.82 88047.73	53844.45 185720.15	113574.76 210931.21	42
19	47434.43 88033.94	53881.98 185590.80	113592.55 210817.33	41
20	47460.04 88020.14	53919.52 185461.59	113610.36 210703.59	40
21	47485.64 88006.33	53957.07 185332.52	113628.19 210589.98	39
22	47511.24 87992.51	53994.64 185203.58	113646.03 210476.52	38
23	47536.83 87978.69	54032.21 185074.79	113663.89 210363.20	37
24	47562.42 87964.86	54069.80 184946.13	113681.76 210250.02	36
25	47588.01 87951.02	54107.40 184817.61	113699.65 210136.98	35
26	47613.59 87937.17	54145.01 184689.23	113717.55 210024.08	34
27	47639.17 87923.32	54182.63 184560.99	113735.47 209911.31	33
28	47664.74 87909.46	54220.27 184432.89	113753.40 209798.69	32
29	47690.31 87895.59	54257.91 184304.92	113771.35 209686.20	31
30	47715.88 87881.71	54295.57 184177.09	113789.32 209573.85	30

TANGENTIVM & SECANTIVM.

28	Sinus		Tangens		Secans		
30	47715.88	87881.71	54295.57	184177.09	113789.32	209573.85	30
31	47741.44	87867.83	54333.24	184049.39	113807.30	209461.64	29
32	47767.00	87853.94	54370.92	183921.84	113825.29	209349.57	28
33	47792.55	87840.04	54408.62	183794.42	113843.30	209237.64	27
34	47818.10	87826.13	54446.32	183667.13	113861.33	209125.84	26
35	47843.64	87812.22	54484.04	183539.99	113879.37	209014.18	25
36	47869.18	87798.30	54521.77	183412.97	113897.43	208902.65	24
37	47894.72	87784.37	54559.51	183286.10	113915.50	208791.27	23
38	47920.26	87770.43	54597.26	183159.36	113933.59	208680.02	22
39	47945.79	87756.49	54635.03	183032.75	113951.69	208568.90	21
40	47971.31	87742.54	54672.81	182906.28	113969.81	208457.92	20
41	47996.83	87728.58	54710.60	182779.94	113987.94	208347.08	19
42	48022.35	87714.61	54748.40	182653.74	114006.09	208236.37	18
43	48047.86	87700.64	54786.21	182527.67	114024.25	208125.80	17
44	48073.37	87686.66	54824.04	182401.73	114042.43	208015.36	16
45	48098.88	87672.67	54861.88	182275.93	114060.62	207905.06	15
46	48124.38	87658.68	54899.73	182150.26	114078.83	207794.89	14
47	48149.88	87644.68	54937.59	182024.73	114097.06	207684.86	13
48	48175.37	87630.67	54975.46	181899.32	114115.30	207574.96	12
49	48200.86	87616.65	55013.35	181774.05	114133.56	207465.19	11
50	48226.34	87602.62	55051.25	181648.92	114151.83	207355.56	10
51	48251.82	87588.59	55089.16	181523.91	114170.12	207246.06	9
52	48277.30	87574.55	55127.08	181399.04	114188.42	207136.70	8
53	48302.77	87560.50	55165.02	181274.30	114206.74	207027.46	7
54	48328.24	87546.45	55202.97	181149.69	114225.07	206918.36	6
55	48353.70	87532.39	55240.93	181025.21	114243.42	206809.40	5
56	48379.16	87518.32	55278.90	180900.86	114261.79	206700.56	4
57	48404.62	87504.24	55316.88	180776.64	114280.17	206591.86	3
58	48430.07	87490.16	55354.88	180652.56	114298.57	206483.28	2
59	48455.52	87476.07	55392.88	180528.60	114316.98	206374.84	1
60	48480.96	87461.97	55430.90	180404.78	114335.41	206266.53	0
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CANON SINVM

29	Sinus		Tangens		Secans		
0	48480.96	87461.97	55430.90	180404.78	114335.41	206266.53	60
1	48506.40	87447.86	55468.94	180281.08	114353.85	206158.36	59
2	48531.84	87433.75	55506.98	180157.51	114372.31	206050.31	58
3	48557.27	87419.63	55545.04	180034.08	114390.78	205942.39	57
4	48582.70	87405.50	55583.11	179910.77	114409.27	205834.60	56
5	48608.12	87391.36	55621.19	179787.59	114427.78	205726.95	55
6	48633.54	87377.22	55659.29	179664.54	114446.30	205619.42	54
7	48658.95	87363.07	55697.39	179541.62	114464.84	205512.03	53
8	48684.36	87348.91	55735.51	179418.83	114483.39	205404.76	52
9	48709.77	87334.75	55773.64	179296.16	114501.96	205297.62	51
10	48735.17	87320.58	55811.79	179173.62	114520.55	205190.61	50
11	48760.57	87306.40	55849.94	179051.21	114539.15	205083.73	49
12	48785.97	87292.21	55888.11	178928.93	114557.76	204976.98	48
13	48811.36	87278.01	55926.29	178806.78	114576.39	204870.36	47
14	48836.74	87263.81	55964.48	178684.75	114595.04	204763.86	46
15	48862.12	87249.60	56002.69	178562.85	114613.70	204657.50	45
16	48887.50	87235.38	56040.91	178441.07	114632.38	204551.26	44
17	48912.87	87221.16	56079.14	178319.43	114651.08	204445.15	43
18	48938.24	87206.93	56117.38	178197.90	114669.79	204339.16	42
19	48963.61	87192.69	56155.64	178076.51	114688.52	204233.30	41
20	48988.97	87178.44	56193.91	177955.24	114707.26	204127.57	40
21	49014.33	87164.19	56232.19	177834.00	114726.02	204021.97	39
22	49039.68	87149.93	56270.48	177713.07	114744.79	203916.49	38
23	49065.03	87135.66	56308.79	177592.18	114763.58	203811.14	37
24	49090.37	87121.38	56347.10	177471.41	114782.39	203705.92	36
25	49115.71	87107.10	56385.43	177350.76	114801.21	203600.82	35
26	49141.05	87092.81	56423.78	177230.24	114820.05	203495.85	34
27	49166.38	87078.51	56462.13	177109.85	114838.90	203391.00	33
28	49191.71	87064.20	56500.50	176989.58	114857.77	203286.27	32
29	49217.04	87049.89	56538.88	176869.43	114876.65	203181.68	31
30	49242.36	87035.57	56577.28	176749.40	114895.55	203077.20	30

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TANGENTIVM & SECANTIVM.

29	Sinus	Tangens	Secans					
30	49242.36	87035.57	56577.28	176749.40	114895.55	203077.20	30	
31	49267.67	87021.24	56615.68	176629.50	114914.47	202972.86	29	
32	49292.98	87006.90	56654.10	176509.72	114933.40	202868.63	28	
33	49318.29	86992.56	56692.53	176390.07	114952.35	202764.53	27	
34	49343.59	86978.21	56730.98	176270.53	114971.32	202660.56	26	
35	49368.89	86963.85	56769.44	176151.12	114990.30	202556.70	25	
36	49394.19	86949.49	56807.91	176031.83	115009.30	202452.97	24	
37	49419.48	86935.12	56846.39	175912.67	115028.31	202349.37	23	
38	49444.77	86920.74	56884.88	175793.62	115047.34	202245.89	22	
39	49470.05	86906.35	56923.39	175674.70	115066.38	202142.53	21	
40	49495.33	86891.96	56961.91	175555.90	115085.44	202039.29	20	
41	49520.60	86877.56	57000.45	175437.22	115104.52	201936.17	19	
42	49545.87	86863.15	57038.99	175318.66	115123.61	201833.18	18	
43	49571.13	86848.73	57077.55	175200.23	115142.72	201730.31	17	
44	49596.39	86834.31	57116.12	175081.91	115161.85	201627.56	16	
45	49621.65	86819.88	57154.71	174963.71	115180.99	201524.94	15	
46	49646.90	86805.44	57193.31	174845.64	115200.15	201422.43	14	
47	49672.15	86791.00	57231.92	174727.68	115219.32	201320.05	13	
48	49697.40	86776.55	57270.54	174609.84	115238.51	201217.79	12	
49	49722.64	86762.09	57309.18	174492.13	115257.72	201115.64	11	
50	49747.87	86747.62	57347.83	174374.53	115276.94	201013.62	10	
51	49773.10	86733.14	57386.49	174257.05	115296.18	200911.72	9	
52	49798.33	86718.66	57425.16	174139.69	115315.43	200809.94	8	
53	49823.55	86704.17	57463.85	174022.45	115334.70	200708.28	7	
54	49848.77	86689.67	57502.55	173905.33	115353.99	200606.74	6	
55	49873.99	86675.17	57541.26	173788.33	115373.29	200505.32	5	
56	49899.20	86660.66	57579.99	173671.44	115392.61	200404.02	4	
57	49924.41	86646.14	57618.73	173554.68	115411.95	200302.83	3	
58	49949.61	86631.61	57657.48	173438.03	115431.30	200201.77	2	
59	49974.81	86617.08	57696.25	173321.49	115450.67	200100.83	1	
60	50000.00	86602.54	57735.03	173205.08	115470.05	200000.00	0	
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CANON SIN VVM

30	Sinus	Tangens	Secans				
0	50000.00	86602.54	57735.03	173205.08	115470.05	200000.00	60
1	50025.19	86587.99	57773.82	173088.78	115489.45	199899.29	59
2	50050.38	86573.43	57812.62	172972.60	115508.87	199798.70	58
3	50075.56	86558.87	57851.44	172856.54	115528.30	199698.23	57
4	50100.74	86544.30	57890.27	172740.60	115547.75	199597.88	56
5	50125.91	86529.72	57929.11	172624.77	115567.22	199497.64	55
6	50151.08	86515.14	57967.97	172509.05	115586.70	199397.53	54
7	50176.24	86500.55	58006.84	172393.45	115606.20	199297.52	53
8	50201.40	86485.95	58045.73	172277.97	115625.72	199197.64	52
9	50226.55	86471.34	58084.62	172162.61	115645.25	199097.87	51
10	50251.70	86456.73	58123.53	172047.36	115664.80	198998.22	50
11	50276.85	86442.11	58162.45	171932.22	115684.36	198898.69	49
12	50301.99	86427.48	58201.39	171817.20	115703.94	198799.27	48
13	50327.13	86412.84	58240.34	171702.30	115723.54	198699.97	47
14	50352.27	86398.20	58279.30	171587.51	115743.15	198600.80	46
15	50377.40	86383.55	58318.28	171472.83	115762.78	198501.72	45
16	50402.53	86368.89	58357.27	171358.27	115782.43	198402.76	44
17	50427.65	86354.23	58396.27	171243.82	115802.09	198303.93	43
18	50452.77	86339.56	58435.28	171129.49	115821.77	198205.20	42
19	50477.88	86324.88	58474.31	171015.27	115841.47	198106.59	41
20	50502.99	86310.19	58513.35	170901.16	115861.18	198008.10	40
21	50528.09	86295.49	58552.41	170787.17	115880.91	197909.72	39
22	50553.19	86280.79	58591.48	170673.29	115900.65	197811.46	38
23	50578.28	86266.08	58630.56	170559.53	115920.41	197713.31	37
24	50603.37	86251.36	58669.65	170445.87	115940.19	197615.27	36
25	50628.46	86236.64	58708.76	170332.33	115959.99	197517.35	35
26	50653.55	86221.91	58747.88	170218.90	115979.80	197419.54	34
27	50678.63	86207.17	58787.02	170105.59	115999.63	197321.85	33
28	50703.70	86192.43	58826.17	169992.38	116019.47	197224.26	32
29	50728.77	86177.68	58865.33	169879.29	116039.33	197126.80	31
30	50753.84	86162.92	58904.50	169766.31	116059.21	197029.44	30

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TANGENTIVM & SECANTIVM.

30	Sinus	Tangens	Secans				
30	50753.84	86162.92	58904.50	169766.31	116059.21	197029.44	30
31	50778.90	86148.15	58943.69	169653.44	116079.11	196932.20	29
32	50803.96	86133.37	58982.89	169540.69	116099.02	196835.07	28
33	50829.01	86118.59	59022.11	169428.04	116118.95	196738.05	27
34	50854.06	86103.80	59061.34	169315.50	116138.89	196641.14	26
35	50879.10	86089.00	59100.58	169203.08	116158.85	196544.34	25
36	50904.14	86074.20	59139.83	169090.77	116178.83	196447.67	24
37	50929.18	86059.39	59179.10	168978.56	116198.82	196351.10	23
38	50954.21	86044.57	59218.39	168866.47	116218.83	196254.64	22
39	50979.24	86029.74	59257.68	168754.49	116238.86	196158.29	21
40	51004.26	86014.91	59296.99	168642.61	116258.91	196062.06	20
41	51029.28	86000.07	59336.32	168530.85	116278.97	195965.93	19
42	51054.29	85985.22	59375.66	168419.19	116299.05	195869.92	18
43	51079.30	85970.37	59415.01	168307.65	116319.14	195774.01	17
44	51104.31	85955.51	59454.37	168196.21	116339.25	195678.22	16
45	51129.31	85940.64	59493.75	168084.89	116359.38	195582.54	15
46	51154.31	85925.76	59533.14	167973.67	116379.53	195486.97	14
47	51179.30	85910.88	59572.54	167862.56	116399.69	195391.50	13
48	51204.29	85895.99	59611.96	167751.56	116419.87	195296.15	12
49	51229.27	85881.09	59651.40	167640.67	116440.07	195200.91	11
50	51254.25	85866.18	59690.84	167529.88	116460.28	195105.77	10
51	51279.22	85851.27	59730.30	167419.21	116480.51	195010.75	9
52	51304.19	85836.35	59769.78	167308.64	116500.76	194915.83	8
53	51329.16	85821.42	59809.27	167198.18	116521.02	194821.02	7
54	51354.12	85806.49	59848.77	167087.82	116541.30	194726.32	6
55	51379.08	85791.55	59888.28	166977.58	116561.60	194631.73	5
56	51404.04	85776.60	59927.81	166867.44	116581.91	194537.25	4
57	51428.99	85761.64	59967.35	166757.41	116602.24	194442.88	3
58	51453.93	85746.68	60006.91	166647.48	116622.59	194348.61	2
59	51478.87	85731.71	60046.48	166537.66	116642.96	194254.45	1
60	51503.81	85716.73	60086.06	166427.95	116663.34	194160.40	0

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CANON SIN VVM

31	Sinus	Tangens	Secans	
0	51503.81	85716.73	60086.06	166427.95
1	51528.74	85701.74	60125.66	166318.34
2	51553.67	85686.75	60165.27	166208.84
3	51578.59	85671.75	60204.90	166099.45
4	51603.51	85656.74	60244.54	165990.16
5	51628.42	85641.73	60284.19	165880.97
6	51653.33	85626.71	60323.86	165771.89
7	51678.24	85611.68	60363.54	165662.92
8	51703.14	85596.64	60403.23	165554.05
9	51728.04	85581.60	60442.94	165445.29
10	51752.93	85566.55	60482.66	165336.63
11	51777.82	85551.49	60522.40	165228.08
12	51802.70	85536.42	60562.15	165119.63
13	51827.58	85521.35	60601.92	165011.28
14	51852.46	85506.27	60641.70	164903.04
15	51877.33	85491.18	60681.49	164794.90
16	51902.19	85476.09	60721.30	164686.86
17	51927.05	85460.99	60761.12	164578.93
18	51951.91	85445.88	60800.95	164471.11
19	51976.76	85430.76	60840.80	164363.38
20	52001.61	85415.64	60880.67	164255.76
21	52026.46	85400.51	60920.54	164148.24
22	52051.30	85385.37	60960.43	164040.82
23	52076.13	85370.23	61000.34	163933.51
24	52100.96	85355.08	61040.26	163826.30
25	52125.79	85339.92	61080.19	163719.19
26	52150.61	85324.75	61120.14	163612.18
27	52175.43	85309.58	61160.11	163505.28
28	52200.24	85294.40	61200.08	163398.47
29	52225.05	85279.21	61240.07	163291.77
30	52249.86	85264.02	61280.08	163185.17
				116663.34
				116683.74
				116704.16
				116724.59
				116745.04
				116765.51
				116785.99
				116806.49
				116827.01
				116847.55
				116868.10
				116888.67
				116909.26
				116929.86
				116950.48
				116971.12
				116991.78
				117012.45
				117033.14
				117053.85
				117074.57
				117095.31
				117116.07
				117136.85
				117157.64
				117178.45
				117199.28
				117220.13
				117240.99
				117261.87
				117282.77
				194160.40
				194066.46
				193972.62
				193878.89
				193785.27
				193691.76
				193598.35
				193505.05
				193411.85
				193318.76
				193225.78
				193132.90
				193040.13
				192947.46
				192854.90
				192762.44
				192670.09
				192577.84
				192485.70
				192393.66
				192301.73
				192209.90
				192118.17
				192026.55
				191935.03
				191843.62
				191752.30
				191661.09
				191569.99
				191478.99
				191388.09

TANGENTIVM & SECANTIVM.

31	Sinus	Tangens	Secans				
30	52249.86	85264.02	61280.08	163185.17	117282.77	191388.09	30
31	52274.66	85248.81	61320.10	163078.67	117303.69	191297.29	29
32	52299.45	85233.60	61360.13	162972.27	117324.62	191206.59	28
33	52324.24	85218.38	61400.18	162865.97	117345.57	191116.00	27
34	52349.03	85203.16	61440.24	162759.77	117366.54	191025.51	26
35	52373.81	85187.93	61480.32	162653.68	117387.52	190935.12	25
36	52398.59	85172.69	61520.41	162547.68	117408.52	190844.83	24
37	52423.36	85157.44	61560.52	162441.78	117429.54	190754.64	23
38	52448.13	85142.19	61600.64	162335.99	117450.58	190664.56	22
39	52472.90	85126.93	61640.77	162230.29	117471.64	190574.57	21
40	52497.66	85111.66	61680.92	162124.69	117492.71	190484.69	20
41	52522.41	85096.39	61721.08	162019.20	117513.80	190394.91	19
42	52547.16	85081.11	61761.26	161913.80	117534.91	190305.22	18
43	52571.91	85065.82	61801.45	161808.50	117556.03	190215.64	17
44	52596.65	85050.52	61841.66	161703.30	117577.17	190126.16	16
45	52621.39	85035.22	61881.88	161598.20	117598.33	190036.78	15
46	52646.12	85019.91	61922.11	161493.20	117619.51	189947.50	14
47	52670.85	85004.59	61962.36	161388.29	117640.70	189858.32	13
48	52695.58	84989.27	62002.63	161283.49	117661.91	189769.24	12
49	52720.30	84973.94	62042.91	161178.78	117683.14	189680.26	11
50	52745.02	84958.60	62083.20	161074.17	117704.39	189591.38	10
51	52769.73	84943.25	62123.51	160969.66	117725.66	189502.59	9
52	52794.44	84927.90	62163.83	160865.25	117746.94	189413.91	8
53	52819.14	84912.54	62204.17	160760.94	117768.24	189325.32	7
54	52843.84	84897.17	62244.52	160656.72	117789.56	189236.84	6
55	52868.53	84881.79	62284.88	160552.60	117810.90	189148.45	5
56	52893.22	84866.41	62325.26	160448.58	117832.25	189060.16	4
57	52917.90	84851.02	62365.66	160344.65	117853.62	188971.97	3
58	52942.58	84835.62	62406.07	160240.82	117875.01	188883.88	2
59	52967.26	84820.22	62446.50	160137.09	117896.42	188795.89	1
60	52991.93	84804.81	62486.94	160033.45	117917.84	188707.99	0

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CANON SINVVM

32	Sinus		Tangens		Secans		
0	52991.93	84804.81	62486.94	160033.45	117917.84	188707.99	60
1	53016.59	84789.39	62527.39	159929.91	117939.28	188620.19	59
2	53041.25	84773.96	62567.86	159826.47	117960.74	188532.49	58
3	53065.91	84758.53	62608.34	159723.12	117982.22	188444.89	57
4	53090.56	84743.09	62648.84	159619.87	118003.72	188357.38	56
5	53115.21	84727.64	62689.35	159516.72	118025.23	188269.97	55
6	53139.86	84712.19	62729.88	159413.66	118046.76	188182.66	54
7	53164.50	84696.73	62770.42	159310.70	118068.31	188095.45	53
8	53189.13	84681.26	62810.98	159207.83	118089.88	188008.33	52
9	53213.76	84665.78	62851.56	159105.05	118111.47	187921.31	51
10	53238.39	84650.30	62892.15	159002.38	118133.07	187834.38	50
11	53263.01	84634.81	62932.75	158899.79	118154.69	187747.55	49
12	53287.63	84619.31	62973.36	158797.30	118176.33	187660.82	48
13	53312.24	84603.81	63013.99	158694.91	118197.99	187574.18	47
14	53336.85	84588.30	63054.64	158592.61	118219.66	187487.64	46
15	53361.45	84572.78	63095.30	158490.41	118241.35	187401.20	45
16	53386.05	84557.25	63135.98	158388.30	118263.06	187314.85	44
17	53410.64	84541.72	63176.67	158286.28	118284.79	187228.59	43
18	53435.23	84526.18	63217.38	158184.36	118306.54	187142.43	42
19	53459.82	84510.63	63258.10	158082.53	118328.30	187056.37	41
20	53484.40	84495.08	63298.83	157980.79	118350.08	186970.40	40
21	53508.98	84479.52	63339.58	157879.15	118371.88	186884.53	39
22	53533.55	84463.95	63380.35	157777.60	118393.70	186798.75	38
23	53558.12	84448.37	63421.13	157676.15	118415.54	186713.06	37
24	53582.68	84432.79	63461.93	157574.79	118437.40	186627.47	36
25	53607.24	84417.20	63502.74	157473.52	118459.27	186541.97	35
26	53631.79	84401.60	63543.57	157372.34	118481.16	186456.57	34
27	53656.34	84386.00	63584.41	157271.26	118503.07	186371.26	33
28	53680.88	84370.39	63625.27	157170.26	118525.00	186286.05	32
29	53705.42	84354.77	63666.14	157069.36	118546.94	186200.93	31
30	53729.96	84339.14	63707.03	156968.56	118568.91	186115.90	30

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TANGENTIVM & SECANTIVM

32	Sinus		Tangens		Secans		
30	53729.96	84339.14	63707.03	156968.56	118568.91	186115.90	30
31	53754.49	84323.51	63747.93	156867.84	118590.89	186030.96	29
32	53779.02	84307.87	63788.85	156767.22	118612.89	185946.12	28
33	53803.54	84292.22	63829.78	156666.69	118634.91	185861.38	27
34	53828.06	84276.57	63870.73	156566.25	118656.95	185776.72	26
35	53852.57	84260.91	63911.69	156465.90	118679.00	185692.16	25
36	53877.08	84245.24	63952.67	156365.64	118701.07	185607.69	24
37	53901.58	84229.56	63993.66	156265.48	118723.16	185523.31	23
38	53926.08	84213.88	64034.67	156165.40	118745.27	185439.03	22
39	53950.58	84198.19	64075.69	156065.42	118767.40	185354.83	21
40	53975.07	84182.49	64116.73	155965.52	118789.55	185270.73	20
41	53999.55	84166.79	64157.79	155865.72	118811.71	185186.72	19
42	54024.03	84151.08	64198.86	155766.01	118833.89	185102.81	18
43	54048.51	84135.36	64239.95	155666.39	118856.09	185018.98	17
44	54072.98	84119.63	64281.05	155566.85	118878.31	184935.25	16
45	54097.45	84103.90	64322.16	155467.41	118900.55	184851.61	15
46	54121.91	84088.16	64363.29	155368.06	118922.81	184768.05	14
47	54146.37	84072.41	64404.44	155268.80	118945.08	184684.59	13
48	54170.82	84056.66	64445.60	155169.63	118967.37	184601.23	12
49	54195.27	84040.90	64486.78	155070.54	118989.68	184517.95	11
50	54219.71	84025.13	64527.97	154971.55	119012.01	184434.76	10
51	54244.15	84009.35	64569.18	154872.64	119034.36	184351.66	9
52	54268.59	83993.57	64610.41	154773.83	119056.73	184268.66	8
53	54293.02	83977.78	64651.65	154675.10	119079.12	184185.74	7
54	54317.44	83961.98	64692.90	154576.46	119101.52	184102.92	6
55	54341.86	83946.18	64734.17	154477.92	119123.94	184020.18	5
56	54366.28	83930.37	64775.46	154379.46	119146.38	183937.53	4
57	54390.69	83914.55	64816.76	154281.08	119168.84	183854.98	3
58	54415.10	83898.73	64858.08	154182.80	119191.32	183772.51	2
59	54439.50	83882.90	64899.41	154084.60	119213.82	183690.13	1
60	54463.90	83867.06	64940.76	153986.50	119236.33	183607.84	0
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CANON SINVM

33	Sinus		Tangens		Secans		
0	54463.90	83867.06	64940.76	153986.50	119236.33	183607.84	60
1	54488.30	83851.21	64982.12	153888.48	119258.86	183525.64	59
2	54512.69	83835.36	65023.50	153790.55	119281.41	183443.53	58
3	54537.07	83819.50	65064.90	153692.70	119303.98	183361.51	57
4	54561.45	83803.63	65106.31	153594.94	119326.57	183279.58	56
5	54585.83	83787.75	65147.74	153497.27	119349.18	183197.74	55
6	54610.20	83771.87	65189.18	153399.69	119371.81	183115.99	54
7	54634.56	83755.98	65230.64	153302.20	119394.46	183034.32	53
8	54658.92	83740.08	65272.11	153204.79	119417.12	182952.74	52
9	54683.28	83724.18	65313.60	153107.47	119439.80	182871.25	51
10	54707.63	83708.27	65355.11	153010.23	119462.50	182789.85	50
11	54731.98	83692.35	65396.63	152913.08	119485.22	182708.54	49
12	54756.32	83676.43	65438.17	152816.02	119507.96	182627.31	48
13	54780.66	83660.50	65479.72	152719.04	119530.72	182546.17	47
14	54804.99	83644.56	65521.29	152622.15	119553.50	182465.12	46
15	54829.32	83628.61	65562.87	152525.35	119576.30	182384.16	45
16	54853.65	83612.66	65604.47	152428.63	119599.11	182303.28	44
17	54877.97	83596.70	65646.09	152332.00	119621.94	182222.49	43
18	54902.28	83580.73	65687.72	152235.45	119644.79	182141.79	42
19	54926.59	83564.76	65729.37	152138.99	119667.66	182061.18	41
20	54950.90	83548.78	65771.03	152042.61	119690.55	181980.65	40
21	54975.20	83532.79	65812.71	151946.32	119713.46	181900.21	39
22	54999.50	83516.80	65854.41	151850.12	119736.39	181819.85	38
23	55023.79	83500.80	65896.12	151754.00	119759.34	181739.58	37
24	55048.08	83484.79	65937.85	151657.96	119782.31	181659.40	36
25	55072.36	83468.77	65979.59	151562.01	119805.29	181579.30	35
26	55096.64	83452.75	66021.35	151466.14	119828.29	181499.29	34
27	55120.91	83436.72	66063.13	151370.36	119851.31	181419.37	33
28	55145.18	83420.68	66104.92	151274.66	119874.35	181339.53	32
29	55169.44	83404.63	66146.73	151179.05	119897.41	181259.77	31
30	55193.70	83388.58	66188.56	151083.52	119920.49	181180.10	30

TANGENTIVM & SECANTIVM.

33	Sinus	Tangens	Secans				
30	55193.70	83388.58	66188.56	151083.52	119920.49	181180.10	30
31	55217.95	83372.52	66230.40	150988.07	119943.59	181100.52	29
32	55242.20	83356.45	66272.26	150892.71	119966.71	181021.02	28
33	55266.45	83340.38	66314.13	150797.43	119989.85	180941.61	27
34	55290.69	83324.30	66356.02	150702.24	120013.01	180862.28	26
35	55314.92	83308.21	66397.92	150607.13	120036.19	180783.04	25
36	55339.15	83292.12	66439.84	150512.10	120059.38	180703.88	24
37	55363.38	83276.02	66481.78	150417.16	120082.59	180624.81	23
38	55387.60	83259.91	66523.73	150322.30	120105.82	180545.32	22
39	55411.82	83243.80	66565.70	150227.52	120129.07	180466.91	21
40	55436.03	83227.68	66607.69	150132.82	120152.34	180388.09	20
41	55460.24	83211.55	66649.69	150038.20	120175.63	180309.35	19
42	55484.44	83195.41	66691.71	149943.67	120198.94	180230.70	18
43	55508.64	83179.27	66733.75	149849.22	120222.27	180152.13	17
44	55532.83	83163.12	66775.80	149754.86	120245.62	180073.65	16
45	55557.02	83146.96	66817.87	149660.58	120268.99	179995.25	15
46	55581.21	83130.79	66859.95	149566.38	120292.37	179916.93	14
47	55605.39	83114.62	66902.05	149472.26	120315.77	179838.69	13
48	55629.56	83098.44	66944.17	149378.22	120339.19	179760.54	12
49	55653.73	83082.26	66986.30	149284.26	120362.64	179682.47	11
50	55677.90	83066.07	67028.45	149190.38	120386.10	179604.48	10
51	55702.06	83049.87	67070.62	149096.59	120409.58	179526.58	9
52	55726.21	83033.66	67112.80	149002.88	120433.08	179448.76	8
53	55750.36	83017.45	67155.00	148909.25	120456.60	179371.02	7
54	55774.51	83001.23	67197.21	148815.70	120480.14	179293.37	6
55	55798.65	82985.00	67239.44	148722.23	120503.70	179215.80	5
56	55822.79	82968.76	67281.69	148628.84	120527.28	179138.31	4
57	55846.92	82952.52	67323.96	148535.53	120550.88	179060.90	3
58	55871.05	82936.27	67366.24	148442.30	120574.50	178983.58	2
59	55895.17	82920.02	67408.54	148349.16	120598.14	178906.33	1
60	55919.29	82903.76	67450.85	148256.10	120621.80	178829.16	0
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C A N O N S I N V V M

34	Sinus		Tangens		Secans		
0	55919.29	82903.76	67450.85	148256.10	120621.80	178829.16	60
1	55943.40	82887.49	67493.18	148163.11	120645.48	178752.08	59
2	55967.51	82871.21	67535.53	148070.21	120669.18	178675.08	58
3	55991.61	82854.93	67577.90	147977.38	120692.89	178598.17	57
4	56015.71	82838.64	67620.28	147884.63	120716.62	178521.33	56
5	56039.81	82822.34	67662.68	147791.97	120740.37	178444.57	55
6	56063.90	82806.03	67705.09	147699.38	120764.14	178367.90	54
7	56087.98	82789.72	67747.52	147606.88	120787.93	178291.31	53
8	56112.06	82773.40	67789.97	147514.45	120811.75	178214.79	52
9	56136.14	82757.07	67832.44	147422.10	120835.59	178138.36	51
10	56160.21	82740.74	67874.92	147329.83	120859.44	178062.01	50
11	56184.28	82724.40	67917.42	147237.64	120883.31	177985.74	49
12	56208.34	82708.05	67959.93	147145.53	120907.20	177909.55	48
13	56232.39	82691.70	68002.46	147053.50	120931.12	177833.43	47
14	56256.44	82675.34	68045.01	146961.55	120955.05	177757.40	46
15	56280.49	82658.97	68087.58	146869.67	120979.00	177681.45	45
16	56304.53	82642.60	68130.16	146777.87	121002.97	177605.58	44
17	56328.57	82626.22	68172.76	146686.16	121026.96	177529.79	43
18	56352.60	82609.83	68215.38	146594.52	121050.97	177454.08	42
19	56376.63	82593.43	68258.01	146502.96	121075.00	177378.45	41
20	56400.65	82577.03	68300.66	146411.47	121099.05	177302.90	40
21	56424.67	82560.62	68343.33	146320.07	121123.12	177227.43	39
22	56448.69	82544.20	68386.01	146228.74	121147.21	177152.04	38
23	56472.70	82527.78	68428.71	146137.49	121171.32	177076.73	37
24	56496.70	82511.35	68471.43	146046.32	121195.45	177001.49	36
25	56520.70	82494.91	68514.17	145955.22	121219.60	176926.33	35
26	56544.69	82478.47	68556.92	145864.20	121243.77	176851.25	34
27	56568.68	82462.02	68599.69	145773.26	121267.96	176776.25	33
28	56592.67	82445.56	68642.47	145682.40	121292.17	176701.33	32
29	56616.65	82429.09	68685.27	145591.61	121316.40	176626.49	31
30	56640.62	82412.62	68728.10	145500.90	121340.64	176551.73	30

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TANGENTIVM & SECANTIVM.

34	Sinus	Tangens	Secans				
30	56640.62	82412.62	68728.10	145500.90	121340.64	176551.73	30
31	56664.50	82396.14	68770.94	145410.27	121364.91	176477.04	29
32	56688.56	82379.65	68813.79	145319.71	121389.20	176402.43	28
33	56712.52	82363.16	68856.66	145229.23	121413.51	176327.91	27
34	56736.48	82346.66	68899.55	145138.83	121437.83	176253.45	26
35	56760.43	82330.15	68942.46	145048.50	121462.18	176179.08	25
36	56784.37	82313.64	68985.38	144958.25	121486.55	176104.78	24
37	56808.31	82297.12	69028.32	144868.08	121510.94	176030.56	23
38	56832.25	82280.59	69071.28	144777.98	121535.35	175956.42	22
39	56856.18	82264.05	69114.25	144687.96	121559.78	175882.36	21
40	56880.11	82247.51	69157.24	144598.01	121584.23	175808.37	20
41	56904.03	82230.96	69200.25	144508.14	121608.70	175734.46	19
42	56927.95	82214.40	69243.28	144418.34	121633.19	175660.63	18
43	56951.86	82197.84	69286.33	144328.62	121657.70	175586.87	17
44	56975.77	82181.27	69329.39	144238.97	121682.23	175513.19	16
45	56999.68	82164.69	69372.47	144149.40	121706.78	175439.59	15
46	57023.58	82148.11	69415.57	144059.91	121731.35	175366.07	14
47	57047.47	82131.52	69458.68	143970.49	121755.94	175292.62	13
48	57071.36	82114.92	69501.81	143881.14	121780.55	175219.24	12
49	57095.24	82098.31	69544.96	143791.87	121805.18	175145.94	11
50	57119.12	82081.70	69588.13	143702.68	121829.83	175072.73	10
51	57142.99	82065.08	69631.31	143613.56	121854.50	174999.58	9
52	57166.86	82048.46	69674.51	143524.51	121879.19	174926.51	8
53	57190.73	82031.83	69717.73	143435.54	121903.90	174853.52	7
54	57214.59	82015.19	69760.97	143346.64	121928.64	174780.60	6
55	57238.44	81998.54	69804.22	143257.81	121953.39	174707.76	5
56	57262.29	81981.89	69847.49	143169.06	121978.16	174634.99	4
57	57286.14	81965.23	69890.78	143080.39	122002.96	174562.30	3
58	57309.98	81948.56	69934.09	142991.78	122027.77	174489.69	2
59	57333.81	81931.89	69977.41	142903.26	122052.60	174417.15	1
60	57357.64	81915.21	70020.75	142814.80	122077.46	174344.68	0

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CANON SIN VVM

35	Sinus	Tangens	Secans				
0	57357.64	81915.21	70020.75	142814.80	122077.46	174344.68	60
1	57381.47	81898.52	70064.11	142726.42	122102.33	174272.29	59
2	57405.29	81881.82	70107.49	142638.11	122127.23	174199.97	58
3	57429.11	81865.12	70150.89	142549.87	122152.15	174127.73	57
4	57452.92	81848.41	70194.30	142461.71	122177.08	174055.56	56
5	57476.72	81831.69	70237.73	142373.62	122202.04	173983.47	55
6	57500.52	81814.97	70281.18	142285.61	122227.02	173911.45	54
7	57524.32	81798.24	70324.65	142197.66	122252.02	173839.51	53
8	57548.11	81781.50	70368.13	142109.79	122277.03	173767.64	52
9	57571.90	81764.76	70411.63	142022.00	122302.07	173695.85	51
10	57595.68	81748.01	70455.15	141934.27	122327.13	173624.13	50
11	57619.46	81731.25	70498.69	141846.62	122352.21	173552.47	49
12	57643.23	81714.49	70542.24	141759.04	122377.32	173480.90	48
13	57667.00	81697.72	70585.81	141671.53	122402.44	173409.41	47
14	57690.76	81680.94	70629.40	141584.09	122427.58	173337.98	46
15	57714.52	81664.15	70673.01	141496.73	122452.74	173266.63	45
16	57738.27	81647.36	70716.64	141409.43	122477.93	173195.35	44
17	57762.02	81630.56	70760.29	141322.21	122503.13	173124.14	43
18	57785.76	81613.76	70803.95	141235.06	122528.36	173053.01	42
19	57809.50	81596.95	70847.63	141147.99	122553.61	172981.95	41
20	57833.23	81580.13	70891.33	141060.98	122578.87	172910.96	40
21	57856.96	81563.30	70935.05	140974.05	122604.16	172840.05	39
22	57880.68	81546.47	70978.78	140887.18	122629.47	172769.21	38
23	57904.40	81529.63	71022.53	140800.39	122654.80	172698.44	37
24	57928.12	81512.78	71066.30	140713.67	122680.15	172627.74	36
25	57951.83	81495.93	71110.09	140627.02	122705.52	172557.12	35
26	57975.53	81479.06	71153.90	140540.44	122730.91	172486.57	34
27	57999.23	81462.19	71197.73	140453.93	122756.33	172416.09	33
28	58022.92	81445.32	71241.57	140367.49	122781.76	172345.68	32
29	58046.61	81428.44	71285.43	140281.13	122807.21	172275.34	31
30	58070.30	81411.55	71329.31	140194.83	122832.69	172205.08	30

TANGENTIVM & SECANTIVM.

35	Sinus		Tangens		Secans		
30	58070.30	81411.55	71329.31	140194.83	122832.69	172205.08	30
31	58093.98	81394.65	71373.21	140108.60	122858.19	172134.89	29
32	58117.65	81377.75	71417.13	140022.45	122883.71	172064.77	28
33	58141.32	81360.84	71461.06	139936.36	122909.25	171994.72	27
34	58164.98	81343.93	71505.01	139850.34	122934.81	171924.75	26
35	58188.64	81327.01	71548.98	139764.40	122960.39	171854.84	25
36	58212.30	81310.08	71592.97	139678.52	122985.99	171785.01	24
37	58235.95	81293.14	71636.98	139592.72	123011.61	171715.25	23
38	58259.59	81276.20	71681.01	139506.98	123037.25	171645.56	22
39	58283.23	81259.25	71725.05	139421.31	123062.92	171575.94	21
40	58306.87	81242.29	71769.11	139335.71	123088.61	171506.39	20
41	58330.50	81225.32	71813.19	139250.18	123114.32	171436.91	19
42	58354.12	81208.35	71857.29	139164.73	123140.05	171367.50	18
43	58377.74	81191.37	71901.41	139079.34	123165.80	171298.17	17
44	58401.36	81174.39	71945.55	138994.01	123191.57	171228.90	16
45	58424.97	81157.40	71989.70	138908.76	123217.36	171159.70	15
46	58448.57	81140.40	72033.87	138823.58	123243.17	171090.58	14
47	58472.17	81123.39	72078.06	138738.46	123269.00	171021.52	13
48	58495.77	81106.38	72122.27	138653.42	123294.86	170952.54	12
49	58519.36	81089.36	72166.50	138568.44	123320.74	170883.62	11
50	58542.94	81072.33	72210.75	138483.53	123346.64	170814.78	10
51	58566.52	81055.30	72255.02	138398.69	123372.56	170746.00	9
52	58590.10	81038.26	72299.31	138313.92	123398.50	170677.30	8
53	58613.67	81021.21	72343.61	138229.22	123424.46	170608.66	7
54	58637.24	81004.16	72387.93	138144.58	123450.44	170540.10	6
55	58660.80	80987.10	72432.27	138060.01	123476.45	170471.60	5
56	58684.35	80970.03	72476.63	137975.51	123502.48	170403.18	4
57	58707.90	80952.96	72521.01	137891.08	123528.52	170334.82	3
58	58731.45	80935.88	72565.41	137806.72	123554.59	170266.53	2
59	58754.99	80918.79	72609.83	137722.42	123580.68	170198.31	1
60	58778.53	80901.70	72654.26	137638.19	123606.80	170130.16	0
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CANON SIN VVM

36	Sinus		Tangens		Secans		
0	58778.53	80901.70	72654.26	137638.19	123606.80	170130.16	60
1	58802.06	80884.60	72698.71	137554.03	123632.94	170062.08	59
2	58825.58	80867.49	72743.18	137469.94	123659.09	169994.07	58
3	58849.10	80850.37	72787.67	137385.91	123685.26	169926.12	57
4	58872.62	80833.25	72832.18	137301.95	123711.48	169858.25	56
5	58896.13	80816.12	72876.71	137218.05	123737.68	169790.44	55
6	58919.64	80798.99	72921.26	137134.23	123763.93	169722.71	54
7	58943.14	80781.85	72965.82	137050.47	123790.19	169655.04	53
8	58966.63	80764.70	73010.40	136966.78	123816.47	169587.43	52
9	58990.12	80747.54	73055.01	136883.15	123842.78	169519.90	51
10	59013.61	80730.38	73099.63	136799.59	123869.11	169452.44	50
11	59037.09	80713.21	73144.27	136716.10	123895.46	169385.04	49
12	59060.57	80696.03	73188.94	136632.67	123921.83	169317.71	48
13	59084.04	80678.85	73233.62	136549.31	123948.22	169250.45	47
14	59107.50	80661.66	73278.31	136466.02	123974.64	169183.26	46
15	59130.96	80644.46	73323.03	136382.79	124001.08	169116.13	45
16	59154.42	80627.26	73367.77	136299.63	124027.54	169049.07	44
17	59177.87	80610.05	73412.53	136216.53	124054.02	168982.08	43
18	59201.32	80592.83	73457.30	136133.50	124080.52	168915.16	42
19	59224.76	80575.60	73502.10	136050.54	124107.04	168848.30	41
20	59248.19	80558.37	73546.91	135967.64	124133.59	168781.51	40
21	59271.62	80541.13	73591.74	135884.81	124160.16	168714.79	39
22	59295.05	80523.89	73636.60	135802.04	124186.75	168648.14	38
23	59318.47	80506.64	73681.47	135719.34	124213.36	168581.55	37
24	59341.89	80489.38	73726.36	135636.70	124239.99	168515.03	36
25	59365.30	80472.11	73771.27	135554.13	124266.65	168448.57	35
26	59388.71	80454.84	73816.20	135471.62	124293.33	168382.18	34
27	59412.11	80437.56	73861.15	135389.18	124320.03	168315.86	33
28	59435.50	80420.28	73906.11	135306.80	124346.75	168249.61	32
29	59458.89	80402.99	73951.10	135224.49	124373.49	168183.42	31
30	59482.28	80385.69	73996.11	135142.24	124400.26	168117.30	30

TANGENTIVM & SECANTIVM.

36	Sinus	Tangens	Secans	
30	59482.28	80385.69	73996.11	135142.24
31	59505.66	80368.38	74041.14	135060.06
32	59529.03	80351.07	74086.18	134977.94
33	59552.40	80333.75	74131.24	134895.89
34	59575.77	80316.42	74176.33	134813.90
35	59599.13	80299.09	74221.43	134731.97
36	59622.49	80281.75	74266.55	134650.11
37	59645.84	80264.40	74311.70	134568.32
38	59669.18	80247.05	74356.86	134486.58
39	59692.52	80229.69	74402.04	134404.92
40	59715.86	80212.32	74447.24	134323.31
41	59739.19	80194.94	74492.46	134241.77
42	59762.51	80177.56	74537.70	134160.29
43	59785.83	80160.17	74582.96	134078.88
44	59809.15	80142.78	74628.24	133997.53
45	59832.46	80125.38	74673.54	133916.24
46	59855.76	80107.97	74718.86	133835.02
47	59879.06	80090.56	74764.20	133753.86
48	59902.36	80073.14	74809.56	133672.76
49	59925.65	80055.71	74854.94	133591.72
50	59948.93	80038.27	74900.33	133510.75
51	59972.21	80020.83	74945.75	133429.84
52	59995.49	80003.38	74991.19	133349.00
53	60018.76	79985.95	75036.65	133268.22
54	60042.02	79968.47	75082.12	133187.49
55	60065.28	79951.00	75127.62	133106.84
56	60088.53	79933.52	75173.14	133026.24
57	60111.78	79916.04	75218.67	132945.71
58	60135.03	79898.55	75264.23	132865.24
59	60158.27	79881.05	75309.81	132784.83
60	60181.50	79863.55	75355.40	132704.48
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CANON SINVM

37	Sinus		Tangens		Secans		
0	60181.50	79863.55	75355.40	132704.48	125213.57	166164.01	60
1	60204.73	79846.04	75401.02	132624.20	125241.02	166099.90	59
2	60227.95	79828.52	75446.66	132543.97	125268.50	166035.85	58
3	60251.17	79811.00	75492.32	132463.81	125296.01	165971.87	57
4	60274.39	79793.47	75537.99	132383.71	125323.53	165907.95	56
5	60297.60	79775.93	75583.69	132303.68	125351.08	165844.09	55
6	60320.80	79758.39	75629.41	132223.70	125378.65	165780.30	54
7	60344.00	79740.84	75675.14	132143.79	125406.25	165716.57	53
8	60367.19	79723.28	75720.90	132063.93	125433.87	165652.90	52
9	60390.38	79705.72	75766.68	131984.14	125461.51	165589.29	51
10	60413.56	79688.15	75812.48	131904.41	125489.17	165525.75	50
11	60436.74	79670.57	75858.29	131824.74	125516.85	165462.27	49
12	60459.91	79652.99	75904.13	131745.13	125544.56	165398.85	48
13	60483.08	79635.40	75949.99	131665.59	125572.29	165335.50	47
14	60506.24	79617.80	75995.87	131586.10	125600.05	165272.21	46
15	60529.40	79600.20	76041.77	131506.68	125627.82	165208.98	45
16	60552.55	79582.59	76087.69	131427.31	125655.62	165145.81	44
17	60575.70	79564.97	76133.63	131348.01	125683.45	165082.70	43
18	60598.84	79547.35	76179.59	131268.76	125711.29	165019.66	42
19	60621.98	79529.72	76225.57	131189.58	125739.16	164956.68	41
20	60645.11	79512.08	76271.57	131110.46	125767.05	164893.76	40
21	60668.23	79494.43	76317.59	131031.40	125794.97	164830.90	39
22	60691.35	79476.78	76363.63	130952.39	125822.91	164768.11	38
23	60714.47	79459.12	76409.69	130873.45	125850.87	164705.37	37
24	60737.58	79441.46	76455.77	130794.57	125878.85	164642.70	36
25	60760.69	79423.79	76501.88	130715.75	125906.86	164580.09	35
26	60783.79	79406.11	76548.00	130636.99	125934.89	164517.54	34
27	60806.89	79388.43	76594.14	130558.28	125962.94	164455.06	33
28	60829.98	79370.74	76640.31	130479.64	125991.02	164392.63	32
29	60853.06	79353.04	76686.49	130401.06	126019.12	164330.27	31
30	60876.14	79335.33	76732.70	130322.54	126047.24	164267.96	30

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TANGENTIVM & SECANTIVM.

37	Sinus	Tangens	Secans	
30	60876.14	79335.33	76732.70	130322.54
31	60899.22	79317.62	76778.93	130244.07
32	60922.29	79299.90	76825.17	130165.67
33	60945.35	79282.18	76871.44	130087.32
34	60968.41	79264.45	76917.73	130009.04
35	60991.47	79246.71	76964.04	129930.81
36	61014.52	79228.96	77010.37	129852.65
37	61037.56	79211.21	77056.72	129774.54
38	61060.60	79193.45	77103.09	129696.49
39	61083.63	79175.69	77149.48	129618.50
40	61106.66	79157.92	77195.89	129540.57
41	61129.68	79140.14	77242.33	129462.69
42	61152.70	79122.35	77288.79	129384.88
43	61175.72	79104.56	77335.26	129307.12
44	61198.73	79086.76	77381.75	129229.43
45	61221.73	79068.96	77428.27	129151.79
46	61244.73	79051.15	77474.81	129074.21
47	61267.72	79033.33	77521.37	128996.69
48	61290.71	79015.50	77567.95	128919.22
49	61313.69	78997.67	77614.55	128841.82
50	61336.66	78979.83	77661.17	128764.47
51	61359.63	78961.98	77707.82	128687.18
52	61382.60	78944.13	77754.48	128609.95
53	61405.56	78926.27	77801.17	128532.77
54	61428.52	78908.41	77847.88	128455.66
55	61451.47	78890.54	77894.60	128378.60
56	61474.42	78872.66	77941.35	128301.60
57	61497.36	78854.77	77988.12	128224.66
58	61520.29	78836.88	78034.92	128147.76
59	61543.22	78818.98	78081.73	128070.93
60	61566.15	78801.07	78128.56	127994.16
M 3				52

CANON SINVM

38	Sinus		Tangens		Secans		
0	61566.15	78801.07	78128.56	127994.16	126901.82	162426.92	60
1	61589.07	78783.16	78175.42	127917.45	126930.67	162366.48	59
2	61611.98	78765.24	78222.29	127840.79	126959.55	162306.09	58
3	61634.89	78747.32	78269.19	127764.19	126988.45	162245.76	57
4	61657.79	78729.39	78316.11	127687.64	127017.37	162185.49	56
5	61680.69	78711.45	78363.05	127611.16	127046.32	162125.28	55
6	61703.59	78693.50	78410.02	127534.73	127075.29	162065.13	54
7	61726.48	78675.55	78457.00	127458.36	127104.29	162005.04	53
8	61749.36	78657.59	78504.00	127382.04	127133.31	161945.00	52
9	61772.24	78639.62	78551.03	127305.78	127162.35	161885.02	51
10	61795.11	78621.65	78598.08	127229.57	127191.42	161825.10	50
11	61817.98	78603.67	78645.15	127153.42	127220.51	161765.24	49
12	61840.84	78585.69	78692.24	127077.33	127249.63	161705.44	48
13	61863.70	78567.70	78739.35	127001.30	127278.77	161645.69	47
14	61886.55	78549.70	78786.49	126925.32	127307.94	161586.00	46
15	61909.40	78531.69	78833.64	126849.39	127337.12	161526.37	45
16	61932.24	78513.68	78880.82	126773.53	127366.34	161466.80	44
17	61955.07	78495.66	78928.02	126697.72	127395.57	161407.28	43
18	61977.90	78477.64	78975.24	126621.96	127424.84	161347.83	42
19	62000.73	78459.61	79022.48	126546.26	127454.12	161288.43	41
20	62023.55	78441.57	79069.75	126470.62	127483.43	161229.08	40
21	62046.36	78423.52	79117.03	126395.03	127512.76	161169.80	39
22	62069.17	78405.47	79164.34	126319.50	127542.12	161110.57	38
23	62091.98	78387.41	79211.67	126244.02	127571.50	161051.40	37
24	62114.78	78369.35	79259.02	126168.60	127600.91	160992.28	36
25	62137.57	78351.28	79306.40	126093.23	127630.34	160933.23	35
26	62160.36	78333.20	79353.79	126017.92	127659.80	160874.23	34
27	62183.14	78315.11	79401.21	125942.67	127689.28	160815.28	33
28	62205.92	78297.02	79448.65	125867.47	127718.78	160756.40	32
29	62228.69	78278.92	79496.11	125792.32	127748.31	160697.57	31
30	62251.46	78260.82	79543.59	125717.23	127777.87	160638.79	30
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TANGENTIVM & SECANTIVM.

38	Sinus		Tangens		Secans		
30	62251.36	78260.82	79543.59	125717.23	127777.87	160638.79	30
31	62274.22	78242.71	79591.10	125642.19	127807.45	160580.08	29
32	62296.98	78224.59	79638.62	125567.21	127837.05	160521.42	28
33	62319.73	78206.46	79686.17	125492.29	127866.67	160462.81	27
34	62342.48	78188.33	79733.74	125417.42	127896.32	160404.26	26
35	62365.22	78170.19	79781.34	125342.60	127926.00	160345.77	25
36	62387.96	78152.05	79828.95	125267.84	127955.70	160287.34	24
37	62410.69	78133.90	79876.59	125193.13	127985.43	160228.96	23
38	62433.42	78115.74	79924.25	125118.48	128015.18	160170.64	22
39	62456.14	78097.57	79971.93	125043.88	128044.95	160112.37	21
40	62478.85	78079.40	80019.63	124969.33	128074.75	160054.16	20
41	62501.56	78061.22	80067.36	124894.84	128104.57	159996.00	19
42	62524.26	78043.04	80115.11	124820.40	128134.42	159937.90	18
43	62546.96	78024.85	80162.88	124746.02	128164.30	159879.86	17
44	62569.66	78006.65	80210.67	124671.69	128194.20	159821.87	16
45	62592.35	77988.45	80258.48	124597.42	128224.12	159763.94	15
46	62615.03	77970.24	80306.32	124523.20	128254.07	159706.06	14
47	62637.71	77952.02	80354.18	124449.03	128284.04	159648.24	13
48	62660.38	77933.80	80402.06	124374.92	128314.04	159590.47	12
49	62683.05	77915.57	80449.97	124300.86	128344.06	159532.76	11
50	62705.71	77897.33	80497.90	124226.85	128374.11	159475.11	10
51	62728.37	77879.08	80545.85	124152.90	128404.18	159417.51	9
52	62751.02	77860.83	80593.82	124079.00	128434.28	159359.96	8
53	62773.66	77842.57	80641.81	124005.15	128464.40	159302.47	7
54	62796.30	77824.31	80689.83	123931.36	128494.55	159245.04	6
55	62818.94	77806.04	80737.87	123857.62	128524.72	159187.66	5
56	62841.57	77787.77	80785.93	123783.93	128554.92	159130.33	4
57	62864.20	77769.49	80834.01	123710.30	128585.14	159073.06	3
58	62886.82	77751.20	80882.12	123636.72	128615.39	159015.84	2
59	62909.43	77732.90	80930.25	123563.19	128645.66	158958.68	1
60	62932.04	77714.60	80978.40	123489.72	128675.96	158901.57	0

CANON SINVM

39	Sinus		Tangens		Secans		
0	62932.04	77714.60	80978.40	123489.72	128675.96	158901.57	60
1	62954.64	77696.29	81026.58	123416.29	128706.28	158844.52	59
2	62977.24	77677.97	81074.78	123342.92	128736.63	158787.52	58
3	62999.83	77659.65	81123.00	123269.61	128767.00	158730.58	57
4	63022.42	77641.32	81171.24	123196.34	128797.40	158673.69	56
5	63045.00	77622.98	81219.51	123123.13	128827.82	158616.85	55
6	63067.58	77604.64	81267.80	123049.97	128858.27	158560.07	54
7	63090.15	77586.29	81316.11	122976.87	128888.75	158503.34	53
8	63112.72	77567.94	81364.44	122903.81	128919.25	158446.67	52
9	63135.28	77549.58	81412.80	122830.81	128949.77	158390.05	51
10	63157.84	77531.21	81461.18	122757.86	128980.32	158333.48	50
11	63180.39	77512.83	81509.58	122684.96	129010.90	158276.97	49
12	63202.93	77494.45	81558.01	122612.11	129041.50	158220.51	48
13	63225.47	77476.06	81606.46	122539.32	129072.13	158164.11	47
14	63248.00	77457.67	81654.93	122466.58	129102.78	158107.76	46
15	63270.53	77439.27	81703.43	122393.89	129133.46	158051.46	45
16	63293.05	77420.86	81751.95	122321.25	129164.16	157995.21	44
17	63315.57	77402.44	81800.49	122248.66	129194.89	157939.02	43
18	63338.08	77384.02	81849.05	122176.13	129225.64	157882.89	42
19	63360.59	77365.59	81897.64	122103.64	129256.42	157826.80	41
20	63383.09	77347.16	81946.25	122031.21	129287.23	157770.77	40
21	63405.59	77328.72	81994.88	121958.83	129318.06	157714.79	39
22	63428.08	77310.27	82043.54	121886.50	129348.92	157658.87	38
23	63450.57	77291.82	82092.22	121814.22	129379.80	157603.00	37
24	63473.05	77273.36	82140.93	121741.99	129410.71	157547.18	36
25	63495.53	77254.89	82189.65	121669.82	129441.64	157491.41	35
26	63518.00	77236.42	82238.40	121597.69	129472.60	157435.70	34
27	63540.46	77217.94	82287.18	121525.62	129503.59	157380.04	33
28	63562.92	77199.45	82335.97	121453.59	129534.60	157324.43	32
29	63585.37	77180.96	82384.79	121381.62	129565.64	157268.87	31
30	63607.82	77162.46	82433.64	121309.70	129596.70	157213.37	30
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TANGENTIVM & SECANTIVM.

39	Sinus		Tangens		Secans		
30	63607.82	77162.46	82433.64	121309.70	129596.70	157213.37	30
31	63630.26	77143.95	82482.51	121237.83	129627.79	157157.92	29
32	63652.70	77125.44	82531.40	121166.01	129658.90	157102.52	28
33	63675.13	77106.92	82580.31	121094.24	129690.04	157047.17	27
34	63697.56	77088.39	82629.25	121022.52	129721.21	156991.88	26
35	63719.98	77069.86	82678.21	120950.85	129752.40	156936.64	25
36	63742.40	77051.32	82727.19	120879.23	129783.62	156881.45	24
37	63764.81	77032.78	82776.20	120807.67	129814.87	156826.31	23
38	63787.21	77014.23	82825.23	120736.15	129846.14	156771.23	22
39	63809.61	76995.67	82874.29	120664.68	129877.44	156716.19	21
40	63832.01	76977.10	82923.37	120593.27	129908.76	156661.21	20
41	63854.40	76958.53	82972.47	120521.90	129940.11	156606.28	19
42	63876.78	76939.95	83021.60	120450.58	129971.48	156551.41	18
43	63899.16	76921.37	83070.75	120379.31	130002.88	156496.58	17
44	63921.53	76902.78	83119.92	120308.10	130034.31	156441.81	16
45	63943.90	76884.18	83169.12	120236.93	130065.76	156387.08	15
46	63966.26	76865.58	83218.34	120165.81	130097.24	156332.41	14
47	63988.62	76846.97	83267.59	120094.75	130128.75	156277.79	13
48	64010.97	76828.35	83316.86	120023.73	130160.28	156223.22	12
49	64033.32	76809.73	83366.15	119952.76	130191.84	156168.70	11
50	64055.66	76791.10	83415.47	119881.84	130223.43	156114.24	10
51	64077.99	76772.46	83464.81	119810.97	130255.04	156059.82	9
52	64100.32	76753.82	83514.18	119740.15	130286.68	156005.46	8
53	64122.64	76735.17	83563.57	119669.38	130318.34	155951.15	7
54	64144.96	76716.51	83612.98	119598.66	130350.03	155896.89	6
55	64167.27	76697.85	83662.42	119527.99	130381.75	155842.67	5
56	64189.58	76679.18	83711.88	119457.36	130413.49	155788.51	4
57	64211.88	76660.51	83761.36	119386.79	130445.26	155734.41	3
58	64234.18	76641.83	83810.87	119316.26	130477.06	155680.35	2
59	64256.47	76623.14	83860.40	119245.79	130508.88	155626.34	1
60	64278.76	76604.44	83909.96	119175.36	130540.73	155572.38	0
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CANON SINVM

40	Sinus	Tangens	Secans				
0	64278.76	76604.44	83909.96	119175.36	130540.73	155572.38	60
1	64301.04	76585.74	83959.54	119104.98	130572.61	155518.48	59
2	64323.32	76567.03	84009.15	119034.65	130604.51	155464.62	58
3	64345.59	76548.32	84058.78	118964.37	130636.44	155410.81	57
4	64367.85	76529.60	84108.44	118894.14	130668.39	155357.06	56
5	64390.11	76510.87	84158.12	118823.95	130700.37	155303.35	55
6	64412.36	76492.14	84207.82	118753.82	130732.38	155249.70	54
7	64434.61	76473.40	84257.55	118683.73	130764.42	155196.09	53
8	64456.85	76454.65	84307.30	118613.69	130796.49	155142.54	52
9	64479.09	76435.90	84357.08	118543.70	130828.58	155089.04	51
10	64501.32	76417.14	84406.88	118473.76	130860.70	155035.58	50
11	64523.55	76398.37	84456.70	118403.87	130892.84	154982.18	49
12	64545.77	76379.60	84506.55	118334.02	130925.01	154928.82	48
13	64567.98	76360.82	84556.43	118264.22	130957.21	154875.52	47
14	64590.19	76342.04	84606.33	118194.47	130989.43	154822.26	46
15	64612.40	76323.25	84656.25	118124.77	131021.68	154769.06	45
16	64634.60	76304.45	84706.20	118055.12	131053.96	154715.90	44
17	64656.79	76285.64	84756.17	117985.51	131086.26	154662.80	43
18	64678.98	76266.83	84806.17	117915.95	131118.59	154609.74	42
19	64701.16	76248.01	84856.19	117846.44	131150.95	154556.73	41
20	64723.34	76229.19	84906.24	117776.98	131183.34	154503.78	40
21	64745.51	76210.36	84956.31	117707.56	131215.75	154450.87	39
22	64767.67	76191.52	85006.40	117638.20	131248.19	154398.01	38
23	64789.83	76172.68	85056.52	117568.88	131280.66	154345.20	37
24	64811.99	76153.83	85106.67	117499.60	131313.16	154292.44	36
25	64834.14	76134.97	85156.84	117430.38	131345.68	154239.73	35
26	64856.28	76116.11	85207.04	117361.20	131378.23	154187.06	34
27	64878.42	76097.24	85257.26	117292.07	131410.81	154134.45	33
28	64900.55	76078.37	85307.50	117222.98	131443.41	154081.89	32
29	64922.68	76059.49	85357.77	117153.95	131476.04	154029.37	31
30	64944.80	76040.60	85408.07	117084.96	131508.70	153976.90	30

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TANGENTIVM & SECANTIVM.

40	Sinus	Tangens	Secans	
30	64944.80	76040.60	85408.07	117084.96
31	64966.92	76021.70	85458.39	117016.01
32	64989.03	76002.80	85508.73	116947.12
33	65011.14	75983.89	85559.10	116878.27
34	65033.24	75964.98	85609.50	116809.47
35	65055.33	75946.06	85659.92	116740.71
36	65077.42	75927.13	85710.37	116672.00
37	65099.50	75908.20	85760.84	116603.34
38	65121.58	75889.26	85811.33	116534.72
39	65143.66	75870.31	85861.85	116466.15
40	65165.72	75851.36	85912.40	116397.63
41	65187.78	75832.40	85962.97	116329.16
42	65209.84	75813.43	86013.57	116260.73
43	65231.89	75794.46	86064.19	116192.34
44	65253.94	75775.48	86114.84	116124.00
45	65275.98	75756.50	86165.51	116055.71
46	65298.01	75737.51	86216.21	115987.47
47	65320.04	75718.51	86266.93	115919.27
48	65342.06	75699.50	86317.68	115851.11
49	65364.08	75680.49	86368.46	115783.01
50	65386.09	75661.47	86419.26	115714.95
51	65408.10	75642.45	86470.09	115646.93
52	65430.10	75623.42	86520.94	115578.96
53	65452.09	75604.39	86571.81	115511.04
54	65474.08	75585.35	86622.71	115443.16
55	65496.06	75566.30	86673.64	115375.32
56	65518.04	75547.24	86724.60	115307.54
57	65540.01	75528.18	86775.58	115239.79
58	65561.98	75509.11	86826.59	115172.10
59	65583.94	75490.04	86877.62	115104.45
60	65605.90	75470.96	86928.68	115036.84
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CANON SIN VVM

41	Sinus		Tangens		Secans		
0	65605.90	75470.96	86928.68	115036.84	132501.30	152425.31	60
1	65627.85	75451.87	86979.76	114969.28	132534.82	152374.33	59
2	65649.80	75432.78	87030.87	114901.76	132568.37	152323.39	58
3	65671.74	75413.68	87082.00	114834.29	132601.94	152272.50	57
4	65693.67	75394.57	87133.16	114766.87	132635.54	152221.66	56
5	65715.60	75375.46	87184.35	114699.49	132669.18	152170.87	55
6	65737.52	75356.34	87235.56	114632.15	132702.84	152120.12	54
7	65759.44	75337.21	87286.80	114564.86	132736.53	152069.42	53
8	65781.35	75318.08	87338.06	114497.62	132770.25	152018.76	52
9	65803.26	75298.94	87389.35	114430.41	132803.99	151968.15	51
10	65825.16	75279.80	87440.67	114363.26	132837.76	151917.59	50
11	65847.06	75260.65	87492.01	114296.15	132871.56	151867.08	49
12	65868.95	75241.49	87543.38	114229.08	132905.39	151816.61	48
13	65890.83	75222.33	87594.78	114162.06	132939.25	151766.19	47
14	65912.71	75203.16	87646.20	114095.08	132973.14	151715.81	46
15	65934.58	75183.98	87697.65	114028.15	133007.06	151665.48	45
16	65956.45	75164.80	87749.12	113961.26	133041.00	151615.20	44
17	65978.31	75145.61	87800.62	113894.41	133074.97	151564.96	43
18	66000.17	75126.41	87852.15	113827.61	133108.97	151514.77	42
19	66022.02	75107.21	87903.70	113760.85	133143.00	151464.62	41
20	66043.86	75088.00	87955.28	113694.14	133177.06	151414.52	40
21	66065.70	75068.79	88006.89	113627.47	133211.15	151364.47	39
22	66087.53	75049.57	88058.52	113560.85	133245.27	151314.46	38
23	66109.36	75030.34	88110.18	113494.27	133279.42	151264.50	37
24	66131.18	75011.11	88161.86	113427.73	133313.59	151214.59	36
25	66153.00	74991.87	88213.57	113361.24	133347.79	151164.72	35
26	66174.81	74972.62	88265.31	113294.79	133382.02	151114.89	34
27	66196.62	74953.37	88317.07	113228.39	133416.28	151065.11	33
28	66218.42	74934.11	88368.86	113162.03	133450.57	151015.38	32
29	66240.22	74914.84	88420.68	113095.71	133484.89	150965.69	31
30	66262.01	74895.57	88472.53	113029.44	133519.24	150916.05	30

TANGENTIVM & SECANTIVM.

41	Sinus	Tangens	Secans	
30	66262.01	74895.57	88472.53	113029.44
31	66283.79	74876.29	88524.40	112963.21
32	66305.57	74857.01	88576.30	112897.02
33	66327.34	74837.72	88628.22	112830.88
34	66349.11	74818.42	88680.17	112764.78
35	66370.87	74799.12	88732.15	112698.72
36	66392.62	74779.81	88784.16	112632.71
37	66414.37	74760.49	88836.20	112566.74
38	66436.11	74741.17	88888.26	112500.81
39	66457.85	74721.84	88940.34	112434.93
40	66479.59	74702.51	88992.45	112369.09
41	66501.32	74683.17	89044.59	112303.29
42	66523.04	74663.82	89096.75	112237.54
43	66544.75	74644.46	89148.94	112171.83
44	66566.46	74625.10	89201.16	112106.16
45	66588.17	74605.74	89253.41	112040.53
46	66609.87	74586.37	89305.69	111974.95
47	66631.56	74566.99	89357.99	111909.41
48	66653.25	74547.60	89410.32	111843.91
49	66674.93	74528.21	89462.68	111778.46
50	66696.61	74508.81	89515.06	111713.05
51	66718.28	74489.40	89567.47	111647.68
52	66739.94	74469.99	89619.91	111582.35
53	66761.60	74450.57	89672.38	111517.06
54	66783.26	74431.15	89724.87	111451.82
55	66804.91	74411.72	89777.39	111386.62
56	66826.55	74392.29	89829.94	111321.46
57	66848.18	74372.85	89882.52	111256.35
58	66869.81	74353.40	89935.12	111191.27
59	66891.44	74333.94	89987.75	111126.24
60	66913.06	74314.48	90040.41	111061.25
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CANON SIN VVM

42	Sinus		Tangens		Secans		
0	66913.06	74314.48	90040.41	111061.25	134563.27	149447.65	60
1	66934.67	74295.01	90093.09	110996.30	134598.53	149399.40	59
2	66956.28	74275.54	90145.80	110931.40	134633.82	149351.18	58
3	66977.88	74256.06	90198.54	110866.53	134669.74	149303.01	57
4	66999.48	74236.57	90251.31	110801.71	134704.49	149254.88	56
5	67021.07	74217.08	90304.11	110736.93	134739.87	149206.80	55
6	67042.66	74197.58	90356.94	110672.19	134775.28	149158.75	54
7	67064.24	74178.08	90409.79	110607.50	134810.72	149110.76	53
8	67085.82	74158.57	90462.67	110542.84	134846.19	149062.80	52
9	67107.39	74139.05	90515.58	110478.23	134881.69	149014.89	51
10	67128.95	74119.53	90568.51	110413.65	134917.21	148967.03	50
11	67150.51	74100.00	90621.47	110349.12	134952.77	148919.20	49
12	67172.06	74080.46	90674.46	110284.63	134988.36	148871.42	48
13	67193.61	74060.92	90727.48	110220.19	135023.98	148823.69	47
14	67215.15	74041.37	90780.53	110155.78	135059.63	148775.99	46
15	67236.68	74021.81	90833.60	110091.41	135095.31	148728.34	45
16	67258.21	74002.25	90886.71	110027.09	135131.02	148680.73	44
17	67279.73	73982.68	90939.84	109962.81	135166.76	148633.17	43
18	67301.25	73963.11	90993.00	109898.56	135202.54	148585.65	42
19	67322.76	73943.53	91046.19	109834.36	135238.34	148538.17	41
20	67344.27	73923.94	91099.41	109770.20	135274.17	148490.73	40
21	67365.77	73904.35	91152.65	109706.08	135310.03	148443.34	39
22	67387.27	73884.75	91205.92	109642.01	135345.93	148395.99	38
23	67408.76	73865.15	91259.22	109577.97	135381.86	148348.68	37
24	67430.24	73845.54	91312.55	109513.97	135417.81	148301.42	36
25	67451.72	73825.92	91365.91	109450.02	135453.79	148254.20	35
26	67473.19	73806.29	91419.29	109386.10	135489.80	148207.02	34
27	67494.66	73786.66	91472.70	109322.23	135525.85	148159.88	33
28	67516.12	73767.02	91526.15	109258.40	135561.93	148112.78	32
29	67537.57	73747.38	91579.62	109194.60	135598.03	148065.73	31
30	67559.02	73727.73	91633.12	109130.85	135634.17	148018.72	30
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TANGENTIVM & SECANTIVM.

42	Sinus		Tangens		Secans		
30	67559.02	73727.73	91633.12	109130.85	135634.17	148018.72	30
31	67580.46	73708.08	91686.65	109067.14	135670.34	147971.76	29
32	67601.90	73688.42	91740.20	109003.47	135706.54	147924.83	28
33	67623.33	73668.75	91793.79	108939.83	135742.77	147877.95	27
34	67644.76	73649.07	91847.40	108876.24	135779.03	147831.11	26
35	67666.18	73629.39	91901.04	108812.69	135815.32	147784.31	25
36	67687.60	73609.71	91954.71	108749.18	135851.64	147737.55	24
37	67709.01	73590.02	92008.41	108685.71	135888.00	147690.84	23
38	67730.41	73570.32	92062.14	108622.28	135924.38	147644.17	22
39	67751.81	73550.61	92115.90	108558.89	135960.80	147597.54	21
40	67773.20	73530.90	92169.68	108495.54	135997.25	147550.95	20
41	67794.59	73511.18	92223.50	108432.23	136033.72	147504.40	19
42	67815.97	73491.46	92277.34	108368.96	136070.23	147457.90	18
43	67837.34	73471.73	92331.22	108305.73	136106.77	147411.44	17
44	67858.71	73451.99	92385.12	108242.54	136143.34	147365.01	16
45	67880.07	73432.25	92439.05	108179.39	136179.95	147318.64	15
46	67901.43	73412.50	92493.01	108116.28	136216.58	147272.30	14
47	67922.78	73392.75	92547.00	108053.21	136253.24	147226.00	13
48	67944.13	73372.99	92601.01	107990.18	136289.94	147179.75	12
49	67965.47	73353.22	92655.06	107927.18	136326.67	147133.53	11
50	67986.81	73333.45	92709.14	107864.23	136363.43	147087.36	10
51	68008.14	73313.67	92763.24	107801.32	136400.22	147041.23	9
52	68029.46	73293.88	92817.38	107738.44	136437.04	146995.14	8
53	68050.78	73274.09	92871.54	107675.61	136473.89	146949.10	7
54	68072.09	73254.29	92925.73	107612.82	136510.78	146903.09	6
55	68093.39	73234.48	92979.96	107550.06	136547.70	146857.13	5
56	68114.69	73214.67	93034.21	107487.34	136584.64	146811.20	4
57	68135.99	73194.85	93088.49	107424.67	136621.62	146765.32	3
58	68157.28	73175.03	93142.80	107362.03	136658.63	146719.48	2
59	68178.56	73155.20	93197.14	107299.43	136695.67	146673.68	1
60	68199.84	73135.37	93251.51	107236.87	136732.75	146627.92	0

CANON SIN VVM

43	Sinus		Tangens		Secans		
0	68199.84	73135.37	93251.51	107236.87	136732.75	146627.92	60
1	68221.11	73115.53	93305.91	107174.35	136769.85	146582.20	59
2	68242.37	73095.68	93360.34	107111.87	136806.99	146536.52	58
3	68263.63	73075.83	93414.79	107049.43	136844.16	146490.88	57
4	68284.88	73055.97	93469.28	106987.02	136881.36	146445.29	56
5	68306.13	73036.10	93523.80	106924.66	136918.59	146399.73	55
6	68327.37	73016.23	93578.34	106862.33	136955.86	146354.22	54
7	68348.61	72996.35	93632.92	106800.04	136993.15	146308.75	53
8	68369.84	72976.46	93687.53	106737.79	137030.48	146263.31	52
9	68391.07	72956.57	93742.16	106675.58	137067.84	146217.92	51
10	68412.29	72936.67	93796.83	106613.41	137105.23	146172.57	50
11	68433.50	72916.77	93851.52	106551.28	137142.66	146127.26	49
12	68454.71	72896.86	93906.25	106489.18	137180.11	146081.98	48
13	68475.91	72876.94	93961.01	106427.13	137217.60	146036.75	47
14	68497.11	72857.02	94015.79	106365.11	137255.12	145991.56	46
15	68518.30	72837.09	94070.61	106303.13	137292.68	145946.41	45
16	68539.48	72817.16	94125.45	106241.19	137330.26	145901.30	44
17	68560.66	72797.22	94180.33	106179.29	137367.88	145856.23	43
18	68581.83	72777.27	94235.23	106117.42	137405.53	145811.20	42
19	68603.00	72757.32	94290.17	106055.60	137443.21	145766.21	41
20	68624.16	72737.36	94345.13	105993.81	137480.92	145721.27	40
21	68645.32	72717.40	94400.13	105932.06	137518.67	145676.36	39
22	68666.47	72697.43	94455.16	105870.34	137556.45	145631.49	38
23	68687.61	72677.45	94510.21	105808.67	137594.26	145586.66	37
24	68708.75	72657.47	94565.30	105747.03	137632.10	145541.87	36
25	68729.88	72637.48	94620.42	105685.44	137669.98	145497.12	35
26	68751.01	72617.48	94675.56	105623.88	137707.89	145452.41	34
27	68772.13	72597.48	94730.74	105562.35	137745.83	145407.74	33
28	68793.24	72577.47	94785.95	105500.87	137783.80	145363.11	32
29	68814.35	72557.46	94841.19	105439.42	137821.81	145318.52	31
30	68835.45	72537.44	94896.46	105378.01	137859.85	145273.97	30
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TANGENTIVM & SECANTIVM.

43	Sinus		Tangens		Secans		
30	68835.45	72537.44	94896.46	105378.01	137859.85	145273.97	30
31	68856.55	72517.41	94951.76	105316.64	137897.92	145229.46	29
32	68877.64	72497.38	95007.09	105255.31	137936.02	145184.98	28
33	68898.73	72477.34	95062.45	105194.01	137974.16	145140.55	27
34	68919.81	72457.29	95117.84	105132.75	138012.33	145096.16	26
35	68940.89	72437.24	95173.26	105071.53	138050.53	145051.81	25
36	68961.96	72417.18	95228.71	105010.34	138088.77	145007.49	24
37	68983.02	72397.12	95284.20	104949.20	138127.04	144963.22	23
38	69004.07	72377.05	95339.71	104888.09	138165.34	144918.98	22
39	69025.12	72356.98	95395.26	104827.02	138203.67	144874.78	21
40	69046.17	72336.90	95450.83	104765.98	138242.04	144830.63	20
41	69067.21	72316.81	95506.44	104704.98	138280.44	144786.51	19
42	69088.24	72296.71	95562.08	104644.02	138318.87	144742.43	18
43	69109.27	72276.61	95617.74	104583.10	138357.34	144698.39	17
44	69130.29	72256.51	95673.44	104522.21	138395.84	144654.39	16
45	69151.31	72236.40	95729.17	104461.36	138434.37	144610.43	15
46	69172.32	72216.28	95784.94	104400.55	138472.94	144566.51	14
47	69193.32	72196.15	95840.73	104339.77	138511.54	144522.62	13
48	69214.32	72176.02	95896.55	104279.04	138550.17	144478.78	12
49	69235.31	72155.88	95952.41	104218.33	138588.83	144434.97	11
50	69256.30	72135.74	96008.29	104157.67	138627.53	144391.20	10
51	69277.28	72115.59	96064.21	104097.04	138666.26	144347.48	9
52	69298.25	72095.44	96120.16	104036.45	138705.03	144303.79	8
53	69319.22	72075.28	96176.14	103975.89	138743.83	144260.13	7
54	69340.18	72055.11	96232.15	103915.37	138782.66	144216.52	6
55	69361.14	72034.94	96288.19	103854.89	138821.53	144172.95	5
56	69382.09	72014.76	96344.27	103794.45	138860.42	144129.41	4
57	69403.04	71994.57	96400.37	103734.04	138899.36	144085.91	3
58	69423.98	71974.38	96456.51	103673.67	138938.32	144042.46	2
59	69444.91	71954.18	96512.68	103613.33	138977.32	143999.04	1
60	69465.84	71933.98	96568.88	103553.03	139016.36	143955.65	0

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CANON SIN VVM

44	Sinus		Tangens		Secans		
0	69465.84	71933.98	96568.88	103553.03	139016.36	143955.65	60
1	69486.76	71913.77	96625.11	103492.77	139055.43	143912.31	59
2	69507.67	71893.55	96681.37	103432.54	139094.53	143869.00	58
3	69528.58	71873.33	96737.67	103372.35	139133.66	143825.74	57
4	69549.49	71853.10	96794.00	103312.20	139172.83	143782.51	56
5	69570.39	71832.87	96850.35	103252.08	139212.03	143739.32	55
6	69591.28	71812.63	96906.74	103191.99	139251.27	143696.16	54
7	69612.17	71792.38	96963.16	103131.95	139290.54	143653.05	53
8	69633.05	71772.13	97019.62	103071.94	139329.85	143609.97	52
9	69653.92	71751.87	97076.10	103011.96	139369.18	143566.93	51
10	69674.79	71731.61	97132.62	102952.03	139408.56	143523.93	50
11	69695.65	71711.34	97189.17	102892.12	139447.96	143480.97	49
12	69716.51	71691.06	97245.75	102832.26	139487.40	143438.05	48
13	69737.36	71670.78	97302.36	102772.43	139526.88	143395.16	47
14	69758.21	71650.49	97359.01	102712.63	139566.39	143352.31	46
15	69779.05	71630.19	97415.69	102652.87	139605.93	143309.50	45
16	69799.88	71609.89	97472.40	102593.15	139645.51	143266.72	44
17	69820.71	71589.58	97529.14	102533.46	139685.12	143223.99	43
18	69841.53	71569.27	97585.91	102473.81	139724.77	143181.29	42
19	69862.34	71548.95	97642.72	102414.19	139764.45	143138.63	41
20	69883.15	71528.63	97699.56	102354.61	139804.16	143096.00	40
21	69903.96	71508.30	97756.43	102295.06	139843.91	143053.42	39
22	69924.76	71487.96	97813.33	102235.55	139883.69	143010.87	38
23	69945.55	71467.62	97870.27	102176.08	139923.51	142968.36	37
24	69966.33	71447.27	97927.24	102116.64	139963.36	142925.88	36
25	69987.11	71426.91	97984.24	102057.23	140003.25	142883.44	35
26	70007.89	71406.55	98041.27	101997.86	140043.17	142841.04	34
27	70028.66	71386.18	98098.33	101938.53	140083.13	142798.68	33
28	70049.42	71365.81	98155.43	101879.23	140123.12	142756.36	32
29	70070.18	71345.43	98212.56	101819.97	140163.15	142714.07	31
30	70090.93	71325.05	98269.73	101760.74	140203.21	142671.82	30
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TANGENTIVM & SECANTIVM.

44	Sinus		Tangens		Secans		
30	70090.93	71325.05	98269.73	101760.74	140203.21	142671.82	30
31	70111.67	71304.66	98326.92	101701.55	140243.30	142629.61	29
32	70132.41	71284.26	98384.15	101642.39	140283.43	142587.43	28
33	70153.14	71263.85	98441.41	101583.26	140323.60	142545.29	27
34	70173.87	71243.44	98498.71	101524.17	140363.80	142503.19	26
35	70194.59	71223.02	98556.03	101465.12	140404.03	142461.12	25
36	70215.30	71202.60	98613.39	101406.10	140444.30	142419.09	24
37	70236.01	71182.17	98670.79	101347.12	140484.60	142377.10	23
38	70256.71	71161.74	98728.21	101288.17	140524.94	142335.14	22
39	70277.41	71141.30	98785.67	101229.25	140565.32	142293.23	21
40	70298.10	71120.86	98843.18	101170.37	140605.73	142251.34	20
41	70318.79	71100.41	98900.69	101111.53	140646.17	142209.50	19
42	70339.47	71079.95	98958.25	101052.72	140686.65	142167.69	18
43	70360.14	71059.48	99015.84	100993.94	140727.17	142125.92	17
44	70380.81	71039.01	99073.46	100935.20	140767.72	142084.18	16
45	70401.47	71018.54	99131.12	100876.49	140808.31	142042.48	15
46	70422.13	70998.06	99188.81	100817.82	140848.93	142000.82	14
47	70442.78	70977.57	99246.54	100759.18	140889.58	141959.19	13
48	70463.42	70957.07	99304.29	100700.58	140930.28	141917.61	12
49	70484.06	70936.57	99362.08	100642.01	140971.00	141876.05	11
50	70504.69	70916.07	99419.91	100583.47	141011.77	141834.54	10
51	70525.32	70895.56	99477.77	100524.97	141052.56	141793.05	9
52	70545.94	70875.04	99535.66	100466.51	141093.40	141751.61	8
53	70566.55	70854.51	99593.58	100408.07	141134.27	141710.20	7
54	70587.16	70833.98	99651.54	100349.68	141175.17	141668.83	6
55	70607.76	70813.45	99709.53	100291.31	141216.11	141627.49	5
56	70628.35	70792.91	99767.56	100232.98	141257.09	141586.19	4
57	70648.94	70772.36	99825.62	100174.69	141298.10	141544.93	3
58	70669.53	70751.80	99883.71	100116.42	141339.15	141503.70	2
59	70690.11	70731.24	99941.84	100058.19	141380.24	141462.51	1
60	70710.68	70710.68	100000.00	100000.00	141421.36	141421.36	0
O 2							45

6. In Triangulo rectangulo quadratum basis est æquale quadratis laterum.

Basis Trianguli rectanguli vocatur recta linea quæ angulum rectum subtendit: reliquæ verò rectum amittentes, latera dicuntur. Itaque in Triangulo superiori ABC, quadratum basis BC, est æquale quadratis laterum BA & CA: cujus ratio ex penultima primi element. manifestæ est.

• ΠΟΡΙΣΜΑΤΑ duo.

Itaque lateribus trianguli rectanguli cognitis, invenitur & basis: collecta enim in unam summam laterum quadrata, componunt quadratum basis, cujus radix quadrata est ipsa basis quæsitæ.

In exemplo sit latus AB 6; & quadratum ejus 36: AC 8, & quadratum 64; erit BC 10. Iuncta enim simul quadrata 36 & 64, componunt quadratum 100: cujus radix quadrata est 10, pro BC basi quæsitæ.

Data vero basi cum latere alterutro, manifestatur & reliquum latus: subducto enim quadrato lateris dati, ex quadrato basis, relinquatur quadratum reliqui lateris; cujus radix quadrata est mensura lateris quæsitæ.

In exemplo præmissæ, deme quadratum lateris AC 64, ex quadrato basis BC 100: relinquatur quadratum lateris AB 36; & radix ejus 6, pro ipso latere, ut supra. Item deme quadratum lateris AB 36, ex quadrato basis BC 100: residuum erit quadratum lateris AC 64; & radix quadrata ejus 8, pro ipso latere postulato.

7. Si Trianguli rectanguli basis assumatur ut circuli radius, latera sinus recti sunt oppositorum angulorum.



Esto enim Triangulum rectangulum ABC, in quo BC basis assumatur ut circuli radius. Dico BA esse sinum rectum anguli BCA; & AC sinum rectum anguli ABC. Recta enim BA est perpendicularis à termino arcus B in semidiametrum DAC. Itaque per 7 primi hujus, Sinus rectus est arcus DB vel anguli BCA per 5 hujus. Eadem ratione recta BE, est sinus rectus arcus FB, vel anguli



guli BCE. Atqui per 34 primi, AC æquatur BE; & angulus ABC, æquatur angulo BCE: erga AC, sinus est anguli ABC oppositi.

ΠΟΡΙΣΜΑΤΑ quatuor.

Primo itaque data basi cum angulis inveniuntur latera. Nam ut radius se habet ad sinum anguli; ita basis ad latus ipsi angulo oppositum.

Exempli gratia, Sit basis BC partium 10, & angulus BCA partium 36 52' 11'', & ABC prioris complementi partium 53 7' 49'', Sinus autem AB 6000000, & AC 8000000, in ea mensura, in qua radius BC est 10000000. Inveniuntur latera AB 6, & AC 8. Nam per 19 Septimi Euclidis,

Ut BC 10000000, ad AB 6000000: Ita BC 10, ad AB 6. Item Ut BC 10000000, ad AC 8000000: Ita BC 10, ad AC 8.

Secundo, data basi cum latere alterutro, manifestantur anguli. Basis enim est ad latus datum: ut radius ad sinum anguli dicto lateri oppositi.

In eodem exemplo, detur BC 10, & AB 6: Invenitur angulus ACB partium 36 52' 11''. Nam per 19 Septimi Euclidis,

Ut BC 10, ad AB 6: Ita BC 10000000, ad AB 6000000, sinum partium 36 52' 11'', competentem angulo ACB. Itaque ABC reliquus angulus, est partium 53 7' 49'': prioris scilicet complementum, ut ex 7 huius, & 32 primi elementorum manifestum est.

Tertio, dato latere alterutro, cum angulis, investigatur latus reliquum. Sinus enim anguli dato lateri oppositi, est ad sinum complementi sui: ut latus datum, ad latus reliquum.

Detur in eodem exemplo angulus ACB partium 36 52' 11'', & sinus ejus 6000000: ABC partium 53 7' 49'', & sinus ejus 8000000, cum latere AB 6; Dabitur AC reliquum latus 8. Nam per 19 Septimi Euclidis,

Ut AB 6000000, ad AC 8000000: Ita AB 6, ad AC 8.

Quarto, datis angulis, & latere alterutro, addiscitur basis: Sinus

Sinus enim anguli dato lateri oppositi, est ad radium : ut latus datum ad Bafin.

Repetito & hic superiori exemplo, Detur AB 6, & angulus ei oppositus BCA partium 36 52' 11", cum sinu ejus 6000000. Invenietur bafis BC partium 10. Nam per 19 Septimi Euclidis, Ut AB 6000000, ad BC 10000000 : Ita AB 6, ad BC 10.

8. Si Trianguli rectanguli latus alterutrum, ex acuto angulo, fiat circuli radius; reliquum est ejusdem anguli Tangens.



Esto rectangulum Triangulum ABC, cujus latus AC fiat circuli radius ex acuto angulo C. Dico AB, tangentem esse anguli ACB, vel arcus AD : est enim perpendicularis extremo semidiametri A, in radium CD per arcus terminum D continuatum. Itaque per 14 Primi hujus, dicti anguli, vel arcus, Tangens est.

ΠΟΡΙΣΜΑΤΑ duo.

Primo igitur, dato latere alterutro cum angulis, invenitur reliquum latus. Radius enim est ad tangentem anguli lateri quæsito oppositi : ut latus datum ad latus reliquum.

Exempli gratia detur latus AB 6: & angulus ABC part. 53 7' 49", fiatque AB radius: erit AC Tangens anguli ABC ex Canone Tangentium 13333333 paulo plus; & latus AC reliquum 8. Nam per 19 Septimi Euclidis,

Ut AB 10000000, ad AC 13333333 paulo plus : Ita AB 6, ad AC 8, Omnino ut supra.

Secundo, dato utroque latere, investigantur anguli. Nam ut latus alterum est ad latus reliquum; ita radius ad tangentem anguli reliquo lateri oppositi.

In exemplo detur latus AB 6: & reliquum latus AC 8. Invenietur angulus ABC lateri AC oppositi, partium 53 7' 49". Nam per 19 Septimi Euclidis,

Ut AB 6, ad AC 8: Ita AB 10000000, ad AC 13333333 paulo plus, Tangentem anguli ACB, oppositi lateri AC; qui ex Tangentium Canone invenitur partium 53 7' 49". Ergo reliquus angulus BCA est partium 36 52' 11".

9. Si Tri-

9. Si Trianguli rectanguli latus alterutrum est anguli tangens, basis est anguli ejusdem secans.



Repetita præmissi Theorematis figura, Sit AB Latus; Tangens anguli BCA. Dico Basim BDC esse ejusdem anguli Secantem: est enim ducta per terminum peripheriæ AD in Tangentem AB. Itaque per 19 primi hujus, Secans est peripheriæ AD, vel anguli BCA.

ΠΟΡΙΣΜΑΤΑ . tria.

Primo ergo, dato latere alterutro, cum angulis, manifestatur basis. Radius enim est ad secantem anguli dati: ut latus eidem angulo adjacens ad Basim.

Exempli loco detur latus AC 8; & angulus BCA Dato lateri adjacens partium 36 52' 11": secans ejus 12500000, erit Basis BC 10. Nam per 19 Septimi Euclidis,

Ut AC 10000000, ad BC 12500000: Ita AC 8, ad BC 10.

Secundo, dato latere alterutro & Basi, exquiruntur anguli. Nam ut latus alterutrum ad Basim: ita radius est ad secantem anguli lateri dato adjacentis.

In exemplo eodem, detur latus AC 8, & basis BC 10: erit angulus BCA partium 36 52' 11". Nam per 19 Septimi Euclidis,

Ut AC 8, ad BC 10: Ita AC 10000000, ad BC 12500000; Secantem anguli BCA, lateri dato AC adjacentis. Inveniturque ex Canone secantium partium 36 52' 11": ergo reliquus ABC, est partium 53 7' 49".

Tertio datis angulis & Basi, inveniuntur latera. Nam secans anguli dati est ad radiū: ut basis ad latus dato angulo adjacens.

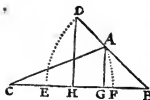
Sicut in exempli loco angulus BCA partium 36 52' 11", & Secans ejus ē Canone Secantium 12500000: Basis BC 10; erit AC latus angulo dato adjacens 8. Nam per 19 Septimi Euclidis,

Ut BC 12500000, ad AC 10000000: Ita BC 10, ad AC 8

Rursum detur Secans anguli ABC partium 53. 7'. 49". 16666666: & basis BC 10; erit AB 6. Nam per 19 Septimi Euclidis,

Ut BC 16666666, ad AB 10000000: Ita BC 10, ad AB 6.

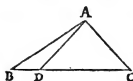
Et sic Triangulorum Rectangulorum Calculum absolvimus. Sequitur



innuetur enim BA latus in D , ut *equale* sit lateri AC : descriptisque peripheriis DE & AF aequalibus radiis CA & BD , dimittantur ex D & A arcuum terminis perpendicularares in basim BC ; sintque DH & AG sinus recti scilicet angulorum C & B , vel arcuum AF & DH per 7 primi hujus. Erit per 4 sexti elementorum, ut BA ad BD , hoc est AC : Ita AG sinus rectus anguli oppositi, ad DH sinum rectum anguli oppositi: quod erat demonstrandum. Conversa hujus Theorematis eodem modo demonstratur. Nam quia BA latus unum est ad BD latus alterum: ut AG sinus angulo C oppositi, ad DH sinum anguli oppositi; est etiam, per elementum citatum, AG sinus anguli C , ad DH sinum anguli B ; ut oppositum latus AB , ad oppositum latus DH , id est, BC . Quod etiam demonstrandum erat. Observa autem hoc Theorema verum esse non modo in omnibus rectilincis Triangulis, sed & Sphericis, quemadmodum suo loco demonstrabitur.

ΠΟΡΙΣΜΑΤΑ duo.

Itaque datis duobus obliquanguli Trianguli lateribus, & angulo non ab iis comprehenso obtuso (aut si acuto data anguli specie alteri lateri oppositi) anguli reliqui, & latus tertium invenitur. Nam ut latus alterutrum dato angulo oppositum est ad sinum anguli dati: ita latus alterum, ad sinum anguli oppositi. Dantur ergo duo anguli; quibus ex semicirculo ablati, relinquitur tertius. quare ut sinus anguli alterutrius noti, ad alterutrum latus oppositum; ita sinus anguli tertii, ad latus tertium.



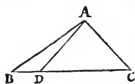
Detur in Triangulo ABC obliquangulo, latus AB 25; AC 17: & angulus ABC non ab iis comprehensus acutus partium 36 52' 11"; cum acuta specie anguli ad C ignoti. Invenietur ipse angulus ad C partium 61 55' 39". Nam per 19 Septimi Euclidis,

Ut latus AC 17, ad sinum anguli ABC 6000000: Ita AB latus 25, ad sinum anguli ACB 8823529.

Cujus arcus è sinuum Canone datur partium 61 55' 39", quia species anguli acuta est: nam si obtusa esset, angulus existeret partium 118 4' 21". Quod ut manifestum fiat, ducatur ex A recta AD in basim BC , æqualis AC :

P 2

lis AC :



lis AC: erit ADC Triangulum æquicrurum, & angulus ADC per 5 primi element. æqualis angulo ACD; exterior autem ADB per 13 ejusdem, erit reliquus ad semicirculum. Quare ut latus BA subtrahat duplicem angulum, ADB obtusum, & ACB acutum: Ita etiam sinus inventus, per 7 primi hujus est duarum peripheriarum, minoris circuli quadrante, & reliqua ad semiperipheriam. Patet igitur definiendam esse anguli speciem dato angulo acuto existente. Alia vero est ratio, cum angulus obtusus datur: nam tunc manifestum est, reliquos Trianguli angulos acutos esse. Duo enim obtusi anguli in Triangulo plano esse nequeunt, cum omnes Trianguli anguli per 32 primi element. æquales sint duobus rectis. Itaque species anguli tunc per se data est, nempe acuta.

Porro cum in Triangulo ABC duo anguli noti sint, ABC & ACB, non potest latere tertius BAC: est enim per 32 primi elementorum, residuus duorum datorum ad semicirculum, partium scilicet 81 12' 10". Itaque tertium latus inde innotescit. Nam

Ut sinus anguli ABC 6000000, ad latus AC 17: Ita sinus anguli BAC 9882353, ad latus BC 28. vel,

Ut sinus anguli ACB 8823529, ad latus AB 25: Ita sinus anguli BAC 9882353, ad latus BC 28.

Secundo, datis duobus Trianguli obliquanguli angulis, & uno latere, manifestatur angulus tertius, cum reliquis lateribus. Subductis enim duobus angulis datis ex semicirculo, relinquuntur tertius. quare ut se habet sinus anguli lateri dato oppositi ad latus datum: ita etiam reliquorum angulorum sinus ad latera opposita.

Sit & hic Triangulum obliquangulum ABC, cujus duo anguli ABC 36 52' 11": & ACB 61 55 39 dentur; cum latere BC 28. Invenietur reliquus angulus BAC, cum lateribus BA & AC. Demptis enim angulis datis ex semicirculo, relinquuntur angulus tertius BAC, partium 81 12' 10". Itaque per 19 septimi Euclidis,

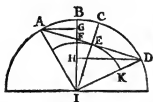
Ut sinus anguli BAC 9882352, ad latus BC 28: Ita sinus anguli ABC 6000000, ad latus AC 17. Item

Ut sinus anguli BAC 9882352, ad latus BC 28: Ita sinus anguli ACB 8823529, ad latus AB 25. vel.

¶

Ut sinus anguli ABC 6000000, ad latus AC 17: Ita sinus anguli ACB 8823529, ad latus AB 25.

15. Si angulorum duorum summa detur, quorum sinuum ratio inter se constet, ipsi etiam anguli secernuntur. Nam ut semissis summæ sinuum rationis, ad differentiam semissis, & termini rationis sinuum alterutrius est: ita tangens summæ angulorum, ad tangentem anguli; quo minor quæsitus ab angulorum summæ semisse deficit; major eam superat.



Detur in adjecto diagrammate, summa angulorum AIB & BID part. 40: cum ratione sinuum ut AG ad DH (vel per 4 sexti elementorum ut AF ad DF) ut 4 ad 7. Dico utrumque angulum AIB & BID singulatim datum iri. Egrediatr enim ex I recta, bisecans AD, rationis sinuum summam datam in E: erit AE $5\frac{1}{2}$, & angulus AIE partium 20, æqualis angulo DIE; FE vero (differentia termini minoris AF 4, & AE $5\frac{1}{2}$ vel ED $5\frac{1}{2}$ & FD termini majoris 7) $1\frac{1}{2}$. Fiat quoque IE radius, ut DE tangens sit anguli DIE, vel arcus KE partium 20: hinc enim dabitur tangens EF angulum EIF vel BIC subtiendens. Nam per 19 septimi Euclidis

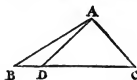
Ut DE $5\frac{1}{2}$, ad DE tangentem ang. DIE 3639702: Ita FE $1\frac{1}{2}$, ad FE tang. anguli EIF, 992646

Cujus arcus è Tangentium Canone datur partium 5 40' 8" fere. Atqui hoc angulo major est angulus BID major: minor vero angulus AIB minor. Ergo BID angulus est partium 25 40' 8" fere: AIB partium 14 19' 52": Quod erat demonstrandum.

ΠΟΡΙΣΜΑ.

Itaque duobus obliquanguli Trianguli lateribus datis, & angulo ab iis comprehenso, inveniuntur anguli reliqui, & latus tertium. Nam ut semissis summæ laterum datorum, ad differentiam summæ semissis, & lateris alterutrius: Sic tangens semissis residui anguli ad semicirculum, ad Tangentem anguli, quo angulus minori lateri oppositus eadem semisse minor, ma-

jori major est. Dantur ergo tres anguli. Quare, ut sinus alterutrius anguli, ad latus oppositum: ita sinus anguli quæsito oppositi, ad latus quæsitum.



Retenta superioris Trianguli figura, sit latus AB 25; BC 28: & angulus ABC partium 36 52' 11". Invenientur reliqui anguli BAC, & ACB cum tercio latere AC. Nam per 32 primi elementorum, ex angulo B noto, datur summa angulorum BAC & ACB, partium 143 7' 48", residuum scilicet anguli dati ad semicirculum: item ex lateribus notis, datur ratio sinuum angulorum oppositorum per 13 hujus. Itaque cum angulorum duorum summa datur, cum ratione sinuum etiam utraque sigillatim definitur. Nam

Vi semissis summe laterum 26 $\frac{1}{2}$. } ad differentiam summe semissis & lateris alterutrus 1 $\frac{1}{2}$:

Sic Tangens semissis residui anguli, ad semicirculum partium 71 33' 54", } ad Tangentem 1698112, anguli partium 9 38' 15", quo angulus ACB minori lateri oppositus semisse residui anguli ad semicirculum minor est: reliquus BAC majori lateri oppositus major est. Itaque ACB est part. 61 55' 39", BAC 81 11' 9". ut supra.

Latus AC ex præmissis Theoremate invenitur 17. Nam

Vi sinus anguli BAC 9882352 ad BC oppositum latus 28: Ita sinus anguli ABC 6000000, ad AC latus oppositum 17.

Et sic calculum rectilineorum Triangulorum exposuimus, cujus usus est in omni magnitudinum genere dimetiendo. Superest tantum ut in eo Mathematicum studiosus sedulo se exerceat. Theoremata enim sunt pro inventionem cujusvis quarti in Triangulo rectilineo datis tribus, idque per 19 septimi Euclidis, .i. regulam proportionum.

Esti vero superior doctrina tam clare propoſita ſit, ut ulterius explicari non ſit opus: quo tamen promptior & expeditior ſit ejus uſus, ſubjungimus ſequentem diatypoſin, in qua tanquam in tabula doctrinæ ſuperioris ſummum exhibemus.

B A S I S

Ex utroque latere, per 6 hujus.

Adde in unam summam quadrata laterum, componitur quadratum Basis: cuius radix quadrata ipsam Basim manifestat.

Ex angulis & alterutro latere, per 7 hujus.

$$\left. \begin{array}{l} \text{Vt sinus anguli dato} \\ \text{lateri oppositi} \end{array} \right\} \begin{array}{c} \text{II} \\ \text{ad radium} \end{array} \left\{ \begin{array}{cc} \text{III} & \text{IIII} \\ \text{Ita datum latius,} & \text{ad basim.} \end{array} \right.$$

vel per 9 hujus,

$$\left. \begin{array}{l} \text{Vt radius} \end{array} \right\} \begin{array}{c} \text{II} \\ \text{ad secantem anguli dato} \\ \text{lateri adjacentis} \end{array} \left\{ \begin{array}{cc} \text{III} & \text{IIII} \\ \text{Ita datum latius,} & \text{ad basim.} \end{array} \right.$$

A N G V L I

Ex basi & latere alterutro, per 7 hujus.

$$\left. \begin{array}{l} \text{Vt basis} \end{array} \right\} \begin{array}{c} \text{II} \\ \text{ad latius datum} \end{array} \left\{ \begin{array}{cc} \text{III} & \text{IIII} \\ \text{Ita radius} & \text{ad sinum anguli dato} \\ & \text{lateri oppositi.} \end{array} \right.$$

vel per 9 hujus,

$$\left. \begin{array}{l} \text{Vt latius datum} \end{array} \right\} \begin{array}{c} \text{II} \\ \text{ad basin} \end{array} \left\{ \begin{array}{cc} \text{III} & \text{IIII} \\ \text{Ita radius} & \text{ad secantem anguli dato} \\ & \text{lateri adjacentis.} \end{array} \right.$$

Ex utroque crure, per 8 hujus.

$$\left. \begin{array}{l} \text{Vt latius} \end{array} \right\} \begin{array}{c} \text{II} \\ \text{ad latius reli-} \\ \text{quum} \end{array} \left\{ \begin{array}{cc} \text{III} & \text{IIII} \\ \text{Ita radius} & \text{ad Tangentem anguli reliquo} \\ & \text{lateri oppositi.} \end{array} \right.$$

ANGVLVS ET DVO LATERA,

Ex duobus angulis & uno latere, per eandem.

Tertius angulus est reliquus duorum datorum ad semicirculum. Itaque,

$$\text{Vt sinus anguli dato lateri oppositi} \left. \begin{array}{c} \text{I} \\ \text{II} \end{array} \right\} \text{ad latus datum} \left\{ \begin{array}{c} \text{Ita sinus anguli} \\ \text{secundi} \end{array} \right. \left. \begin{array}{c} \text{III} \\ \text{IV} \end{array} \right\} \text{ad latus op-} \\ \text{positum.}$$

$$\text{Vt sinus anguli} \left. \begin{array}{c} \text{I} \\ \text{II} \end{array} \right\} \text{ad summum latus op-} \left\{ \begin{array}{c} \text{Ita sinus anguli} \\ \text{tertii} \end{array} \right. \left. \begin{array}{c} \text{III} \\ \text{IV} \end{array} \right\} \text{ad latus tertium.}$$

ANGVLI DVO ET LATVS

Ex duobus lateribus & angulo ab iis com-
prehenso, per 15 hujus.
$$\text{Vt semissis summe laterum} \left. \begin{array}{c} \text{I} \\ \text{II} \end{array} \right\} \text{ad differentiam summe semissis \& lateris alter-} \\ \text{datis} \left. \begin{array}{c} \text{III} \\ \text{IV} \end{array} \right\} \text{utrinus:}$$

$$\text{Ita Tangens semissis} \left. \begin{array}{c} \text{I} \\ \text{II} \end{array} \right\} \text{ad Tangentem anguli, quo angulus lateri minori opposi-} \\ \text{residui anguli ad} \left. \begin{array}{c} \text{III} \\ \text{IV} \end{array} \right\} \text{tus semisse dicti residui anguli ad semicirculum mi-} \\ \text{semicirculum} \left. \begin{array}{c} \text{V} \\ \text{VI} \end{array} \right\} \text{nor est: oppositus majori major est.}$$

$$\text{Vt anguli alteru-} \left. \begin{array}{c} \text{I} \\ \text{II} \end{array} \right\} \text{trius sinus} \left\{ \begin{array}{c} \text{ad latus op-} \\ \text{positum} \end{array} \right. \left\{ \begin{array}{c} \text{Ita sinus anguli quesito} \\ \text{lateri oppositi} \end{array} \right. \left. \begin{array}{c} \text{III} \\ \text{IV} \end{array} \right\} \text{ad latus que-} \\ \text{situm.}$$

G E O M E T R I Æ T R I A N G V L O R V M L I B E R I I I I.

De Calculo Triangulorum Sphæricorum.

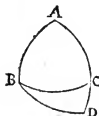
I.



ANONIS Triangulorum compositi usus alter est, in Calculo Triangulorum Sphæricorum.

Superioris libri Theoremate primo, duplex nobis usus Triangulorum Canonis indicatus est: prior in rectilineorum, posterior in Sphæricorum Triangulorum Calculo. Prioris ve-

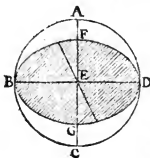
ro ratio præmissa tractatu nobis fuisse explicata est: Posterioris demonstratio hoc libro continetur.



2. Triangulum Sphæricum, est figura in sphærica superficie, trium maximorum Sphæ-
ræ arcuum concursu, conformata.

Talis est in adjecto schemate, figura ABC, vel ABD.

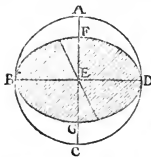
3. Maximi Sphæ-
ræ circuli sunt quibus unum Sphæ-
ræ centrum commune est.



4. Si maximus Sphæ-
ræ circulus transeat per maximis polos, ipsi nor-
malis est: & contra.

Maximus circulus ABCD, transeat per
maximi circuli BGDF polos A & D: di-
co circulum ABCD, normalem esse circulo
BGDF. Ducatur enim per centrum Sphæ-
ræ E, recta BED, ad communem intersec-
tionem planorum B & D: secetque eam alia re-
cta AEC normaliter per centrum E, & po-
los

Q 2



los A & C; erit hæc per 4 undecimi Euclidis plano circuli ABCD normalis. Itaque per 18 ejusdem, planum circuli ABCD, .i. ipse circulus ABCD: est normalis plano circuli BGDF, .i. ipsi circulo BGDF; quod erat demonstrandum. Conuersa ex eadem demonstratione perspicua est. Diameter enim BED, secat axin AED in E centro normaliter, per 4 undecimi Euclidis: puncta autem A & D, sunt poli circuli BGDF, ex poli definitione; per quos necessario transit circulus ABCD, per conuersam decimæ octauæ undecimi elementorum. Itaque maximus Sphæræ circulus ABCD, maximo BGDF normalis, transit per polos ejus: quod erat demonstrandum.

ΠΟΡΙΣΜΑΤΑ duo.

Itaque demissus à polo circuli maximi, in circumferentiam suam arcus, dictæ circumferentiæ normalis est.

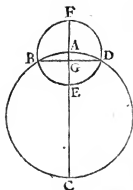
Sic enim in figura superiori AB arcus maximi circulus, demissus in circumferentiam BGDF à polo ejusdem A: erit eidem normalis. Nam cum arcus AB, transeat A polum circuli BGDF, vel saltem in eo desinat, consequitur eidem normalem esse.

Punctum vero concursus duorum arcuum maximi circuli, vel unius quadrantis terminus, normaliter è circulo maximo eductorum, est ejusdem circuli polus.

Sic in eodem diagrammate, A punctum concursus duorum arcuum BA & DA, eductorum normaliter è circulo maximo BGDF: vel A, terminus quadrantis BA vel DA ex eodem circulo normaliter educti, est ejusdem circuli polus. Nam cum BA & DA sigillatim circulo BGDF normales sint ex thesi, necesse per polos transeunt, vel in polo concurrunt: & proinde punctum concursus arcuum BA & DA, vel terminus quadrantis alterutrius, est circuli BGDF polus.

5. Si maximus Sphæræ circulus, transeat per minoris circuli polum, eidem normalis est.

Maximus Sphæræ circulus ABCD, transeat per A polum circuli minoris BEDF: dico maximum minori normalem esse. Maximi enim



nim circuli diameter AEC, est normalis diametro minoris BGD per 3 tertii elementorum. Itaque & circulus maximus ABCD, minimo BEDF normalis per 18 undecimi Euclidis: quod erat demonstrandum.

6. Triangulum Sphæricum, reſtangulum eſt, aut obliquangulum.

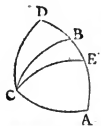
7. Reſtangulum eſt quod angulum habet reſtū.

8. Anguli amplitudinē in Sphærico Triangulo, menſurat arcus maximi circuli, ex angulo tanquam polo deſcriptus dictum angulū ſubtendens.

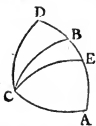
Ita in adiuncta Diagrapha, arcus BC, menſurat angulum BAC: eſt enim arcus magni circuli, ex angulo A, tanquam polo deſcriptus, ipſum angulum ſubtendens.



9. Si Trianguli reſtanguli latus alterum, ſit quadrans circuli, oppoſitus angulus reſtus eſt; ſi quadrante majus, obtuſus; ſi minus, acutus; & contra.



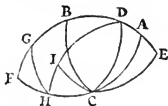
Latus reſtanguli Trianguli alterum, vocamus arcum alternitrum qui reſtū angulum continet. Eſto igitur Triangulum Sphæricum ABC, reſtangulum ad A: Sitque AB latus circuli quadrans. Dico angulum BCA oppoſitum, reſtū eſſe. Nam per ſecundum poſiſma quarti huius, B eſt polus circumferentiæ CA: per quem tranſiit arcus BC. Itaque per primum poſiſma ejuſdem, arcus BC eſt normalis circumferentiæ CA: & proinde angulus ad C reſtus. Fiat vero AD latus quadrante majus, & arcus AB circumli quadrans: erit angulus BCA reſtus, per primam huius Theorematis partem; & proinde DCA obtuſus (angulus enim DCA, maior eſt angulo BCA) tandem ſtatuantur latus AE quadrante minus, & arcus AB



circuli quadrans : erit angulus BCA rectus per primam partem hujus, major angulo ECA ; & proinde angulus ECA acutus est.

Conversa eadem ratione demonstratur. sint enim in eodem Triangulo, anguli BCA , & BAC recti : erunt opposita latera BA , & BC , circuli quadrantes. Arcus enim BA , & BC , egredientes normaliter ex peripheria circuli maximi CA , concurrunt in B , ejusdem polo, per secundum porisma quarti hujus : ideoque quadrantes sunt maximorum circulorum. Simili ratione demonstratur DA , latus, majus esse circuli quadrante, si angulus ad C obtusus sit; minus, si acutus. Nam si angulus DCA constituitur obtusus, erit BCA rectus, & proinde latus DA majus latere BA circuli quadrante : si ECA constituitur acutus, erit BCA rectus; & proinde EA minus BA quadrante : quod erat ostendendum.

10. Si trianguli rectanguli latus alterum sit quadrans circuli, etiam basis quadrans est; si vero utrumque latus quadrante circuli majus sit, aut minus, basis quadrante minor est : quod si latus unum circuli quadrante majus sit, reliquum minus, basis quadrante major est : & contra.



Theorematis hujus partes tres sunt. Prima, basin Trianguli rectanguli esse quadrantem circuli, si latus alterum sit circuli quadrans; & contra. Esto igitur Sphericum Triangulum ABC , rectangulum ad A : sitque latus AB circuli quadrans. Dico BC basin etiam circuli quadrantem esse.

Nam per præmissum Theorema, angulus ad C rectus est : & proinde arcus AB & CB , normaliter egrediuntur ex CA circumferentia, concurrunt autem in B polo. Itaque per 2 porisma quarti hujus, maximorum circulorum quadrantes sunt.

Conversa hujus partis perspicua est. Sit enim angulus ad A rectus, & BC circuli quadrans. Dico alterutrum laterum etiam circuli quadrantem esse : polo enim B , describatur maximus circulus, secturus circumferentiam BA in A ; vel supra A in D ; infra in E : si secet in A , constat BA latus quadrantem esse per secundum porisma quarti hujus. Si vero in D , aut E punctis, anguli ad D & E recti sunt per primum porisma ejusdem : angulus autem ad

A re-

A rectus est ex Theſi; quare per ſecundum perifma ejuſdem, C eſt polus circumferentie BDAE, & latus CA circuli quadrans.

Secunda huius Theorematis pars eſt: Baſis quadrante minorem eſſe, ſi utrumque Trianguli reſt anguli latus, quadrante majus ſit, aut minus: & contra. Aſſumatur igitur & hic Triangulum ABC, reſt angulum ad A: continuenturque latera AB & AC, in F oppoſitum polum; componentur duo Triangula, ABC, & FBC, invicem æqualia. Duſto vero arcu GH, perpendiculari G & H: fiet GH baſis, communis Triangulo GAH reſt angulo, habenti latera AG & AH, quadrante circuli AB, vel AC, majora; Itemque Triangulo GFH reſt angulo reliquo habenti latera FG & FH quadrante circuli FB vel FC minora; baſis vero GH erit minor BC quadrante circuli: reſtos angulos ad F, & A, per 8 huius menſurante. Secus enim ſi non ſit, vel major erit BC arcu, vel æqualis ipſi. Sed major eſſe nequit: quia Triangulum ABC, ad omnes angulos reſt angulum, non poteſt capere latus reſto majus. Æqualis eſſe nequit, quia neutrius Trianguli latus circuli quadrans eſt: conſequitur igitur baſis GH, quadrante minorem eſſe.

Converſa huius partis etiam facilis eſt. Sit enim baſis quadrante minor: dico utrumque latus Trianguli reſt anguli dati, quadrante majus, aut minus eſſe. Nam ſi non ſit; unum quadrans eſt; vel unum quadrante majus, & reliquum minus. Atqui ſi unum latus quadrans ſit: eſt & baſis quadrans. Vel ſi unum latus quadrante majus ſit, reliquum minus: baſis quadrante major eſt. Utrumque eſt contra Theſin. Ergo utrumque latus, vel quadrante majus, vel minus eſt. Prioris ratio ex prima huius Theorematis parte clara eſt: poſterioris ex tertia: quæ docet,

Baſis quadrante circuli majorem eſſe, ſi unum reſt anguli Trianguli latus ſit quadrante circuli majus, reliquum minus: & contra. Aſſumatur enim & hic Triangulum DAH, reſt angulum ad A: cujus latus AD, ſit minus AB circuli quadrante; & reliquum AH, majus AC circuli quadrante. Dico DH baſis, etiam quadrante circuli majorem eſſe: & contra. Arcus enim AC, eſt circuli quadrans ex ſubrica: quemadmodum & DC per ſecundum perifma quarti huius. Quare ſi polo D, in C deſcribantur arcus maximi circuli CI; ſecabit DH baſin in I, proinde DI quadrans erit, per citatum perifma, & DH quadrante major.

Converſa huius partis ſimiliter patet; latus alterum Trianguli reſt anguli quadrante majus eſſe, reliquum minus, ſi baſis quadrante major ſit. Secus enim ſi non ſit: erunt latera vel circuli quadrantes; & tunc baſis eſt quadrans, per primam huius Theorematis partem: vel utrumque latus erit majus quadrante, vel minus, & tunc baſis quadrante minor eſt, per ſecundam huius Theorematis

par-

partem. Sed utrumque est contra Theſin. Itaque latius unum quadrante majus ; reliquum minus est : quæ fuerint demonſtranda.

11. Si Trianguli rectanguli alteruter angulorum in baſi rectus ſit , baſis eſt circuli quadrans ; ſin uterque vel acutus vel obtuſus ſit , baſis eſt quadrante minor : ſi vero alter eorum acutus ſit , & reliquus obtuſus , baſis quadrante major eſt : & contra.

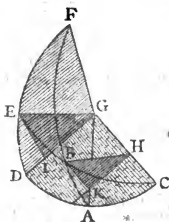


Sit Triangulum ABC rectangulum ad C. Dico AB baſin , circuli quadrantem eſſe , ſi alteruter angulorum in baſi , A , aut B rectus ſit : quadrante minorem ſi uterque vel acutus , vel obtuſus ſit ; majorem , ſi alter acutus , reliquus obtuſus ſit : & contra. Si enim alteruter angulorum A , vel B rectus ſit : alterutrum laterum circuli quadrans eſt per 9 hujus ; ergo per 10 ejuſdem , baſis AB etiam circuli quadrans eſt. Sin uterque angulus A & B ſimiliter acutus ſit , aut obtuſus : utrumque latius AC , & CB , per nonam hujus , quadrante majus , vel minus eſt ; ergo per 10 ejuſdem , baſis AB quadrante minor eſt. Quod ſi alteruter angulorum A & B acutus ſit , reliquus obtuſus : per 9 hujus , alterutrum laterum quadrante circuli minus , reliquum majus eſt ; ergo per 10 ejuſdem baſis AB quadrante major eſt.

Converſa ſimiliter probatur. ſit enim baſis AB circuli quadrans , alteruter angulorum A aut B rectus eſt : Nam per decimam hujus latius alterutrum quadrans circuli eſt , ergo per 9 ejuſdem angulus alter rectus eſt. Si vero AB baſis quadrante minor ſit : uterque angulus A & B vel acutus , vel obtuſus eſt ; nam per 10 hujus utrumque latius vel majus eſt vel minus quadrante. Ergo per 9 ejuſdem , uterque angulus vel acutus vel obtuſus eſt. Demum ſi AB baſis quadrante major ſit , alteruter angulorum A , aut B acutus eſt , reliquus obtuſus. Nam per 10 hujus , latius unum quadrante minus , reliquum majus eſt : ergo per 9 ejuſdem , angulus alter acutus , reliquus obtuſus eſt ; quæ fuerunt oſtendenda.

12. Si quadrans maximi circuli , ad quadrantem maximi inclinatus fuerit , & ab inclinato perpendiculares duo deſcendant , quorum alter utriuſque quadrantis terminum ſecet : finis recti ſegmentorum quadrantis inclinati , ab inclinationis angulari puncto , perpendicularium rectis ſinibus porportionales ſunt.

Eſto



nationis scilicet superficiei quadrantis GEC , ad superficiem quadrantis GDC ang. Itaque per quartum sexti elementorum, latera quæ subter æquales eos angulos sunt, BH & EG : Item BK & EI , sunt proportionalia; quod erat demonstrandum.

ΠΟΡΙΣΜΑΤΑ οἷτο.

Primo itaque, in rectangulo Triangulo, unicum rectum habente, ex data basi, & angulo alterutro obliquo, invenitur latus oppositum. Radius enim est ad finem basis: ut sinus anguli ad finem lateris oppositi. Vel, Radius est ad secantem complementi basis; ut secans complementi anguli ad secantem complementi lateris oppositi. Vel sinus basis est ad radium; ut secans complementi anguli, ad secantem complementi lateris oppositi. Vel secans complementi basis est ad radium: ut sinus anguli ad finem lateris oppositi.

Est in precedenti Diagrapha, ABC Triangulum rectangulum, unicum rectum habens ad A per primum porisma quarti huius: detorque BC basis ejus, partium 60; & angulus ACB part. 30; Invenietur AB latus oppositum partium 25 39 32". Nam per quartam sexti elementorum, & 19 septimi,

R

Vi EG

$$\begin{array}{l}
 \text{Vt EG radius} \\
 10000000
 \end{array}
 \left\{ \begin{array}{l}
 \text{ad BH sinum} \\
 \text{basis BC} \\
 8660254
 \end{array} \right\}
 \left\{ \begin{array}{l}
 \text{Ita EI sinus arcus} \\
 \text{ED vel anguli} \\
 \text{ACB per 8 huius} \\
 5000000, \text{ ad}
 \end{array} \right\}
 \left\{ \begin{array}{l}
 \text{BK sinum late-} \\
 \text{ris oppositi BA} \\
 4330127 \text{ par-} \\
 \text{tis 25 39' 32''}
 \end{array} \right\}$$

Ergo latus AB est partium 25 39' 32" : quadrante minus per 9 huius, quia angulus oppositus ACB acutus est.

Demonstratum vero est 20 Theoremate primi huius, sinum rectum peripherie ad radium esse : ut radius ad secantem complementi. Itemque, secantes peripheriarum, complementorum suorum rectis sinibus proportionales esse. Itaque per secundum porisma Theorematis citati,

$$\begin{array}{l}
 \text{Vt radius} \\
 10000000
 \end{array}
 \left\{ \begin{array}{l}
 \text{ad secantem com-} \\
 \text{plem. basis BC} \\
 11547004
 \end{array} \right\}
 \left\{ \begin{array}{l}
 \text{Ita secans compl.} \\
 \text{anguli dati} \\
 20000000 \text{ ad}
 \end{array} \right\}
 \left\{ \begin{array}{l}
 \text{secantem compl.} \\
 \text{lateris oppositi} \\
 \text{AB 23094008} \\
 \text{par. 64 20' 28''}
 \end{array} \right\}$$

Quare latus AB est partium 25 39 32 ut supra.

Aliter per primum porisma Theorematis citati,

$$\begin{array}{l}
 \text{Vt sinus basis} \\
 8660254, \text{ ad}
 \end{array}
 \left\{ \begin{array}{l}
 \text{Radium} \\
 10000000
 \end{array} \right\}
 \left\{ \begin{array}{l}
 \text{Ita secans com-} \\
 \text{plem. ang. dati} \\
 20000000, \text{ ad}
 \end{array} \right\}
 \left\{ \begin{array}{l}
 \text{secantem compl. late-} \\
 \text{ris oppositi AB} \\
 23094008.
 \end{array} \right\}$$

Aliter per secundum porisma ejusdem,

$$\begin{array}{l}
 \text{Vt secans cōp. basis} \\
 11547004 \text{ ad}
 \end{array}
 \left\{ \begin{array}{l}
 \text{Radium} \\
 10000000
 \end{array} \right\}
 \left\{ \begin{array}{l}
 \text{Ita sinus anguli dati} \\
 5000000, \text{ ad}
 \end{array} \right\}
 \left\{ \begin{array}{l}
 \text{Sinu lateris oppositi} \\
 \text{AB 4330127.}
 \end{array} \right\}$$

Secundo, data basi, & latere alterutro, exquiritur angulus oppositus. Nam ut sinus basis est ad radium; ita sinus lateris dati ad sinum anguli oppositi. Vel, ut secans complementi basis est ad radium; ita secans complementi lateris, ad secantem complementi anguli oppositi. Aut, ut radius est ad sinum basis; ita secans complementi lateris, ad secantem complementi anguli oppositi. Aut, ut radius est ad secantem complementi basis: ita sinus lateris, ad sinum anguli oppositi.

Retento

Retento superiori Triangulo ABC, sit basis BC partium 60: & latius AB partium 25 39' 32. Invenietur angulus ACB oppositus, partium 30. Nam per quartam sexti & 19 septimi Euclidis,

$$\left. \begin{array}{l} \text{Vt BH sinus} \\ \text{basis BC} \end{array} \right\} \begin{array}{l} \text{ad EG radium} \\ 10000000, \text{ ita} \end{array} \left\{ \begin{array}{l} \text{BK sinus lateris} \\ \text{AB 4330127,} \\ \text{est ad} \end{array} \right\} \left\{ \begin{array}{l} \text{EI sinum arcus ED} \\ \text{vel anguli ACB} \\ 5000000. \end{array} \right.$$

Angulus itaque ACB quaesitus est partium 30: acutus per 9 huius, quia latius oppositum est minus circuli quadrante.

Aliter per secundum porisma 20 primi huius,

$$\left. \begin{array}{l} \text{Vt secans compl. basis} \\ 11547004 \text{ ad} \end{array} \right\} \left\{ \begin{array}{l} \text{Radium} \\ 10000000, \\ \text{ita} \end{array} \right\} \left\{ \begin{array}{l} \text{Secans compl.} \\ \text{lateris dati} \\ 23094008 \text{ ad} \end{array} \right\} \left\{ \begin{array}{l} \text{Secantem compl. ang. op-} \\ \text{positi 20000000,} \\ \text{partium 60.} \end{array} \right.$$

Itaque ipse angulus est partium 30.

Aliter per primum porisma ejusdem,

$$\left. \begin{array}{l} \text{Vt radius} \\ 10000000 \end{array} \right\} \left\{ \begin{array}{l} \text{ad sinum basis} \\ 8660254, \text{ ita} \end{array} \right\} \left\{ \begin{array}{l} \text{Secans compl.} \\ \text{lateris dati} \\ 23094008, \text{ ad} \end{array} \right\} \left\{ \begin{array}{l} \text{Secantem complem.} \\ \text{anguli oppositi} \\ 20000000. \end{array} \right.$$

Aliter per secundum porisma ejusdem,

$$\left. \begin{array}{l} \text{Vt radius} \\ 10000000 \end{array} \right\} \left\{ \begin{array}{l} \text{ad secantem compl.} \\ \text{basis 11547004,} \\ \text{ita} \end{array} \right\} \left\{ \begin{array}{l} \text{Sinus lateris dati} \\ 4330127, \text{ ad} \end{array} \right\} \left\{ \begin{array}{l} \text{Sinum anguli oppo-} \\ \text{siti 5000000} \\ \text{partium 30.} \end{array} \right.$$

Tertio, dato latere & angulo huic opposito, investigatur basis, si constiterit quadrantene major sit an minor. Nam ut sinus anguli est ad radium; ita sinus lateris, ad sinum basis. Aut, ut secans complementi anguli est ad radium; ita secans complementi lateris, ad secantem complementi basis. Vel, ut radius est ad sinum anguli; ita secans complementi lateris est, ad secantem complementi basis. Aut, ut radius est ad secantem complementi anguli: ita sinus lateris ad sinum basis.

Assumpto & hic superiori Triangulo, detur latus AB partium 25 39' 32":
 & angulus BCA oppositus partium 30; erit BC basis part. 60. si fuerit
 quadrante minor: vel 120 si maior. Nam per 4 sexti, & 19 sept. Euclidis,

Vt EI sinus angul. } EG radium { Ita BK sinus } ad BH sinu basis BC
 ECD 5000000 ad } 10000000 { 4330127 } 8660254 minorem
 quadrante partiu 60.

Aut per secundum porisma 20. primi huius,

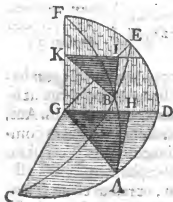
Vt secans compl. } ad radium { Ita secans comp. } Secantem complemen. basis
 ang. 20000000 } 10000000 { lateris dati } 11547004 part. 30. ergo
 basis est partium 60.

Vel per primum porisma ejusdem,

Vt radius } Sinum ang. dati { Ita secans compl. lateris } Secantē compl. ba-
 10000000 ad } 5000000 { dati 23094008, ad } sis 11547004.

Vel per secundum porisma citata,

Vt radius } Secantē compl. ang. { Sinus lateris dati } ad sinum basis
 10000000 ad } 20000000, ita } 433012 } 8660254 ut supra.



Quarto, dato latere alteru-
 tro & basi, innotescit latus reli-
 quum: sinus enim complemen-
 ti lateris dati est ad radium; ut
 sinus complementi basis, ad si-
 num complementi lateris reli-
 qui. Vel, secans lateris dati est
 ad radium; ut secans basis ad
 secantem reliqui lateris. Vel,
 radius est ad sinum comple-
 menti lateris; ut secans basis ad
 secantem lateris alterius. Vel,
 radius est ad secantem lateris;
 ut

ut sinus complementi basis, ad sinum complementi lateris reliqui.

Sit & hic Trianguli ABC, latus AB partium 25 39' 32": & BC basis partium 60. Invenietur reliquum latus AC, partium 56, 18', 35". Nam per quartam sexti, & 19 septimi Euclidis,

Ut BK sinus arcus FB, comple. } ad AG radium { BI sinus arcus } ad AH sinu arcus
lateris AB dati } 10000000, ita { BE, i. comp. } AD comp. lat. AC
9013880 } { basis BC } 5547002 partium
5000000, } 33 41 25.

Itaque AC latus est partium 56 18' 35", quadrante minus per 10 hujus, quia basis cum reliquo latere sigillatim quadrante minor est.

Aliter per 2 porisma vicesima primi hujus,

Ut secans lateris } ad radium { Ita secans basis } ad secantem reliqui late-
dati 11094005 } 10000000 { 20000000 } ris 18027760 partium
56 18' 35".

Vel per primum porisma ejusdem,

Ut radius } ad sinum comp. late- } Ita secans basis } ad secantem reliqui la-
10000000 } ris dati 9013880 { 20000000 } teris 18027760.

Vel per secundum porisma ejusdem,

Ut radius } ad secantem lateris { Ita sinus comp. } ad sinum comp. lateris
10000000 } dati 11094005 { basis 5000000 } quaesiti 5547002.

Quinto, dato utroque latere investigatur basis. Nam, ut radius est ad sinum complementi lateris alterutrius: ita sinus complementi lateris reliqui, est ad sinum complementi basis. Vel, radius est ad secantem lateris alterutrius, ut secans lateris reliqui ad secantem basis. Vel, sinus complementi lateris alterutrius est ad radium; ut secans lateris reliqui, ad secantem basis. Vel, secans lateris alterutrius est ad radium; ut sinus complementi lateris reliqui, ad sinum complementi basis.

Detur in Triangulo ABC, latus AB partium 25 39' 32": & AC reliquum latus partium 56 18' 35". inuenietur basis BC partium 60. Nam per 4 sexti, & 19 septimi Euclidis,

$$\begin{array}{l} \text{Vt A Gradus} \\ 10000000 \end{array} \left\{ \begin{array}{l} \text{ad BK sinũ arcus} \\ \text{FB .i. cõpl. lateris} \\ \text{AB 9013880} \end{array} \right\} \begin{array}{l} \text{Ita AH sinus arcus} \\ \text{DA .i. cõpl. later.} \\ \text{DC 5547002} \end{array} \left\{ \begin{array}{l} \text{ad BI sinũ arcus} \\ \text{EB .i. cõp. bas. BC} \\ \text{5000000 par. 30} \end{array} \right.$$

Ergo basis BC est partium 60, minor circuli quadrante per 10 huius, quia utrumque latus sigillatim quadrante minus est.

Aliter per secundum porisma 20 primi huius,

$$\begin{array}{l} \text{Vt radius} \\ 10000000 \end{array} \left\{ \begin{array}{l} \text{ad secantẽ lateris} \\ \text{AB 11094005} \end{array} \right\} \begin{array}{l} \text{Ita secans lateris} \\ \text{AC 18027760} \end{array} \left\{ \begin{array}{l} \text{ad secantem basis} \\ \text{20000000, part. 60.} \end{array} \right.$$

Vel per primum porisma ejusdem,

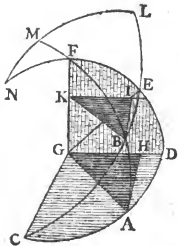
$$\begin{array}{l} \text{Vt sinus comp. lat.} \\ \text{AB 9013880} \end{array} \left\{ \begin{array}{l} \text{ad radium} \\ 10000000 \end{array} \right\} \begin{array}{l} \text{Ita secans reliqui} \\ \text{lateris 18027760} \end{array} \left\{ \begin{array}{l} \text{ad secantem basis} \\ \text{20000000} \end{array} \right.$$

Vel per secundum porisma ejusdem,

$$\begin{array}{l} \text{Vt secans lat.} \\ \text{AB 11094005} \end{array} \left\{ \begin{array}{l} \text{ad radium} \\ 10000000 \end{array} \right\} \begin{array}{l} \text{Ita sinus compl. lateris} \\ \text{reliqui 5547002} \end{array} \left\{ \begin{array}{l} \text{ad sinum cõp. ba-} \\ \text{sis 5000000.} \end{array} \right.$$

Sexto, dato latere & angulo adjacente, innotescit obliquus alter: Radius enim est ad finum complementi lateris: ut sinus anguli, ad finum complementi reliqui. Aut, radius est ad secantem lateris dati; ut secans complementi anguli, ad secantem anguli reliqui. Aut, sinus complementi lateris dati est ad radium; ut secans complementi anguli, ad secantem reliqui. Aut, secans lateris dati est ad radium; ut sinus anguli, ad finum complementi reliqui.

Repetita postrema Trianguli nostri figura, detur latus AC partium 56 18' 35": angulusque ei adjacens ACB partium 30. Inuenietur reliquum obli-



obliquus ABC, part. 73. 53' 52"
 & paulo plus. Continentur enim arcus,
 BE in L; BF in M: & EF
 in N; ut BL, BM, & EN,
 quadrantes sine maximorum circulo-
 rum. Facto vero N polo, describatur
 maximi circuli quadrans NML,
 per terminos quadrantis BM, &
 BL. Manifestum est angulum ad
 M, in Triangulo NMF rectum esse
 per primum porisma quarti hujus: &
 basin FN, complementum esse arcus
 FE; & proinde æqualem arcui ED.
 Item angulum ad F, æqualem esse an-
 gulo AFD, vel arcui AD, com-
 plemento scilicet lateris AC. Quare

Et angulo, detur basis FN, æqualis angulo ACB: & angulus ad F æ-
qualis complemento lateris AC; dabitur etiam oppositum angulo lateris NM,
complementum scilicet arcus M:L, angulum ad B quaesitum subtendens.
Nam per primum porisma hujus,

$\overline{P}e$ radius } ad basim FN .i. {Ita ang. MFN} ad MN .i. sinu comp.an-
 10000000 } sinu ang. ACB } .i. sinu comp.lat. } guli ad B, 2773501
 5000000 } AC 5547002 } partium 16 6' 8" fere.

Ergo angul. ABC est partium $73^{\circ} 53' 52''$; acutus per 9 hujus, quia oppositum ei latus AC quadrante minus est.

Aliter per 2 porisma 20 primi hujus,

$$\left. \begin{array}{l} \text{Vs radius} \\ 10000000 \end{array} \right\} \begin{array}{l} \text{ad secantem} \\ \text{copl. ang. dati} \end{array} \left\{ \begin{array}{l} \text{Ita secans lateris} \\ \text{dati 18027760} \end{array} \right\} \begin{array}{l} \text{ad secantem angl. reliqui} \\ 36055520 \text{ part. } 73 \\ 53' 52'', \text{ ut supra.} \end{array}$$

Vel per primum porisma ejusdem,

$\left. \begin{array}{l} \text{Vs sinus anguli} \\ \text{dati } 5000000 \end{array} \right\} \text{ ad radium } \left. \begin{array}{l} \text{Ita secans lateris} \\ \text{dati } 18027760 \end{array} \right\} \text{ ad secantem anguli re-} \\ \text{liqui } 36055520.$

Vol.

Vel per secundum porisma ejusdem,

$$\left. \begin{array}{l} \text{Vt secans comp. ang.} \\ \text{dati } 20000000 \end{array} \right\} \begin{array}{l} \text{ad radium} \\ 10000000 \end{array} \left\{ \begin{array}{l} \text{Ita sinus compl.} \\ \text{lateris dati} \\ 5547002 \end{array} \right\} \begin{array}{l} \text{ad sinum compl.} \\ \text{anguli reliqui} \\ 2773501. \end{array}$$

Septimo, dato latere, & angulo opposito; datur obliquus reliquus, si species ejus nota sit. Sinus enim complementi lateris dati est ad radium; ut sinus complementi anguli dati ad sinum reliqui. Vel, secans lateris dati est ad radium; ut secans anguli dati, ad secantem complementi reliqui. Vel, radius est ad sinum complementi lateris dati: ut secans anguli dati, ad secantem complementi reliqui. Vel, radius est ad secantem lateris; ut sinus complementi anguli dati, ad sinum reliqui.

Detur in Triangulo ABC latus AB partium 25 39' 32": & angulus ei oppositus ACB partium 30; cum specie reliqui ad B acuta. Invenitur ipse angulus ad B partium 73 53' 52". Nam in Triangulo FMN rectangulo, datur latus FM, æquale lateri AB: & basis NF æqualis arcui DE, .i. angulo ACB. Ergo & reliquum latus NM, .i. complementum arcus ML, vel anguli ad B, per quartum porisma hujus innotescit. Nam,

$$\left. \begin{array}{l} \text{Vt sinus cõp. MF} \\ \text{.i. AB lat. dati} \\ 9013880 \end{array} \right\} \begin{array}{l} \text{ad radium} \\ 10000000 \end{array} \left\{ \begin{array}{l} \text{Ita sinus cõpl. basis} \\ \text{NF .i. ang. dati} \\ 8660254 \end{array} \right\} \begin{array}{l} \text{ad sinũ ML .i. ang. ad} \\ \text{B } 9607690 \text{ part. } 73 \\ 53 \text{ } 52, \text{ acuti ex thesi.} \end{array}$$

Vel per secundum porisma 20 primi hujus,

$$\left. \begin{array}{l} \text{Vt secans AB} \\ \text{lateris dati} \\ 11094005 \end{array} \right\} \begin{array}{l} \text{ad radium} \\ 10000000 \end{array} \left\{ \begin{array}{l} \text{Ita secans ang.} \\ \text{ACB dati} \\ 11547004 \end{array} \right\} \begin{array}{l} \text{ad secantem complementi} \\ \text{angul. reliqui } 10408330 \\ \text{partium } 16 \text{ } 6' \text{ } 8". \end{array}$$

Ergo ipse angulus est partium 73 53' 52".

Vel per primum porisma ejusdem,

$$\left. \begin{array}{l} \text{Vt radius} \\ 10000000 \end{array} \right\} \begin{array}{l} \text{ad sinũ cõp. lateris} \\ \text{dati } 9013880 \end{array} \left\{ \begin{array}{l} \text{Ita secans anguli} \\ \text{ACB } 11547004 \end{array} \right\} \begin{array}{l} \text{ad secantem compl. ang.} \\ \text{reliqui } 10408330. \end{array}$$

Vel

Vel per secundum porisma 20 primi hujus,

$$\left. \begin{array}{l} \text{Vt radius} \\ 10000000 \end{array} \right\} \begin{array}{l} \text{ad secantem lateris} \\ \text{AB 11094005} \end{array} \left\{ \begin{array}{l} \text{Ita sinus compl.} \\ \text{ang. ACB dati} \\ 8660254 \end{array} \right\} \begin{array}{l} \text{ad sinum anguli re-} \\ \text{liqui 9607690} \end{array}$$

Postremo, dato utroque angulo obliquo, datur etiam latus alterutrum. Sinus enim anguli unius, se habet ad radium; ut sinus complementi reliqui, ad sinum complementi lateris oppositi. Aut, secans complementi anguli unius est ad radium; ut secans alterius, ad secantem lateris oppositi. Vel, radius est ad sinum anguli alterutrius; ut secans anguli reliqui, ad secantem lateris oppositi. Vel, radius est ad secantem complementi anguli unius; ut sinus complementi alterius, ad sinum complementi lateris oppositi.

Manente postremo diagrammate, detur in Triangulo ABC rectangulo, uterque obliquus angulus ad B & C: dabitur etiam alterutrum latus. Nam in Triangulo MFN rectangulo, datur latus MN, complementum arcus LM, subtendentis angulum ad B: & basis NF, complementum scilicet arcus FE, .i. arcus ED, subtendens angulum ad C. Ergo & angulus ad F oppositus, .i. arcus DA, vel complementum lateris AC inveniatur. Nam per 2 porisma hujus,

$$\left. \begin{array}{l} \text{Vt sinus basis} \\ \text{FN .i. ang. ad} \\ \text{C, 5000000} \end{array} \right\} \begin{array}{l} \text{ad radium} \\ 10000000 \end{array} \left\{ \begin{array}{l} \text{Ita sinus lateris} \\ \text{MN .i. cõp. ang.} \\ \text{ad B 2773501} \end{array} \right\} \begin{array}{l} \text{ad MFN sinum ang.} \\ \text{oppositi .i. comple. lateris} \\ \text{AC 5547002 partium} \\ 16' 6'' 8'', fere.} \end{array}$$

Ergo ipsum latus AC est partium 73 53' 52" paulo plus: quadrante minus per 9 hujus, quia angulus oppositus acutus est.

Aliter per 2 porisma 20 primi hujus,

$$\left. \begin{array}{l} \text{Vt secans cõpl.} \\ \text{anguli ad C} \\ 20000000 \end{array} \right\} \begin{array}{l} \text{ad radium} \\ 10000000 \end{array} \left\{ \begin{array}{l} \text{Ita secans ang.} \\ \text{reliqui ad B} \\ 36055520, \end{array} \right\} \begin{array}{l} \text{ad secantem lateris oppositi,} \\ 18027760, \text{ par. } 73' 53' 52'', \\ \text{paulo plus, ut supra.} \end{array}$$

S

Vel

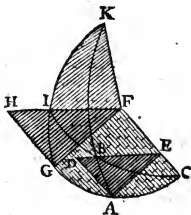
Vel per primum porisma 20 primi hujus,

$$\left. \begin{array}{l} \text{Vt radius} \\ 10000000 \end{array} \right\} \begin{array}{l} \text{ad sinum ang. ad} \\ \text{C } 5000000 \end{array} \left\{ \begin{array}{l} \text{Ita secans ang. ad} \\ \text{B } 36055520 \end{array} \right\} \begin{array}{l} \text{ad secantē lateris op-} \\ \text{positi } 18027760. \end{array}$$

Vel per secundum porisma ejusdem,

Vr radius	} $ad\ secantem\ comp.\ ang.$	$Ita\ sinus\ comp.$	} $ad\ sinum\ comp.$
10000000		$anguli\ reliqui$	
	$ad\ C\ 20000000$	2773501	5547002.

13. Si quadrans maximi circuli, quadrantem maximi fecerit, & fecante, duo arcus perpendiculares secto ducantur, quorum alter per utriusque quadrantis terminum transeat; sinus recti segmentorum quadrantis secti, à puncto sectionis, perpendicularium tangentibus proportionales sunt.



Maximi circuli quadrans
IBC, secet GAC quadrante
maximi in C: & ab IBC
secame, descendunt perpendiculares
arcus duo, IG & BA; quo-
rum alter IG, transeat per ter-
minum utrinque quadrantis I
& G. Dico sinus rectos GF &
AE, segmentorum CI & CA:
proportionales esse tangentibus HG,
& DA, perpendicularium IG
& BA. Triangula enim HGF,
& DAE, sunt æquiangula: ob
rectos angulos ad G & A, per
5 primi huius; Communem ad
F & E, inclinationis scilicet an-
gulum superficiæ quadrantis secan-

nis, ad superficiem quadrantis sc̄iti. Itaque per quartum sexti elementorum sunt
lateralium proportionalium. Quare ut GF, ad AE: ita HG ad DA,
quod et erat demonstrandum.

ΠΟΡΙΣΜΑΤΑ 670.

Primo igitur in rectangulo Triangulo, dato latere & angulo adjacente, investigatur latus reliquum. Radius enim est ad finem lateris dati, ut tangens anguli adjacentis, ad tangentem reliqui lateris. Vel, radius est ad secantem complementi lateris: ut tangens complementi anguli adjacentis, ad tangentem complementi lateris alterius. Vel, sinus lateris dati est ad radium: ut tangens complementi anguli adjacentis, ad tangentem complementi lateris reliqui. Vel, secans complementi lateris dati, est ad radium: ut tangens anguli adjacentis, ad tangentem reliqui lateris.

Assumpto & hic Triangulo ABC rectangulo, detur latus AC partium 56 18' 35": & angulus adjacens ad C partium 30. invenietur reliquum latus AB, part. 25 39' 32". Nam per 4 sexti & 19 septi. Euclidis,

$$\begin{array}{l} \text{Vt GF radius} \\ 10000000 \end{array} \left\{ \begin{array}{l} \text{ad AE sinu} \\ \text{lateris AC} \\ 8320482 \end{array} \right. \left\{ \begin{array}{l} \text{Ita GH tan-} \\ \text{gens arcus IG} \\ \text{.i. ang. ad C;} \\ 5773502 \end{array} \right. \left\{ \begin{array}{l} \text{ad AD tangentem later. AB} \\ 4803831 \text{ part. } 25 \ 39' \ 32''. \\ \text{quadrā. minoris per 9 hujus} \\ \text{quia ang. oppos. acutus est.} \end{array} \right.$$

Demonstratum vero est 20 Theoremate primi hujus, secantes arcuum, complementorum suorum rectis sinibus: itemque 17 ejusdem, tangentes arcuum complementorum suorum tangentibus proportionales esse. Itaque si loco sinuū, tangentiumque peripheriarum datarum, assumantur complementorum secantes & tangentes, manebit eadem proportio. Quare,

$$\begin{array}{l} \text{Vt radius} \\ 10000000 \end{array} \left\{ \begin{array}{l} \text{ad secantē cōp.} \\ \text{lateris dati} \\ 12018535 \end{array} \right. \left\{ \begin{array}{l} \text{Ita tangens comp.} \\ \text{anguli ad C} \\ 17320508 \end{array} \right. \left\{ \begin{array}{l} \text{ad tang. comp. lateris oppo-} \\ \text{siti AB } 20816713 \\ \text{partium } 64 \ 20' \ 28''. \end{array} \right.$$

Ergo ipsum latus est partium 25 39' 32".

Vel, quia radius media proportionem est ad tangentes peripherie & complementi, per 17 primi hujus,

$$\begin{array}{l} \text{Sinus lateris AC} \\ 8320482 \end{array} \left\{ \begin{array}{l} \text{est ad radium} \\ 10000000 \end{array} \right. \left\{ \begin{array}{l} \text{ut tangens cōp.} \\ \text{anguli dati} \\ 17320508 \end{array} \right. \left\{ \begin{array}{l} \text{ad tangens. complementi} \\ \text{lateris AB oppositi} \\ 20816713. \end{array} \right.$$

S 2

Vel,

Vel,

Secans cōp. lateris } est ad radium { ut tangens anguli } ad tangent. lateris AB
AC 12018535 } 10000000 { ad C 5773502 } oppositi 4803831.

Secundo, dato latere & angulo opposito, exquiritur reliquum latus, si constiterit: quadrantene majus sit an minus. Nam ut tangens anguli dati est ad radium: ita tangens lateris oppositi, ad sinum anguli reliqui. Vel, ut tangens complementi anguli noti, ad radium est: ita tangens complementi lateris oppositi, ad secantem complementi lateris alterius. Vel, ut radius ad tangentem anguli dati; ita tangens complementi alterius lateris, ad secantem complementi lateris oppositi. Vel, ut radius ad tangentem complementi anguli dati: ita tangens lateris oppositi, ad sinum lateris reliqui.

Manente figura superioris Trianguli, sit latus AB part. 25 39' 32": & angulus ad C oppositus partium 30; dabitur reliquum latus AC partium 56 18' 35". Nam per 4. sexti & 19. septimi Euclidis,

Ut GH tangen. arcus IG i. ang. ad C 5773502	} ad GF radiū 10000000	{ Ita AD tang. lateris AB oppositi 4803831	} ad AE sinū lateris reliqui AC 8320482. part. 56 18' 35" si minus qua- drante sit, partium vero 123 41' 25" si majus sit.
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Vel per 17 & 20 primi hujus,

Ut tangens cōp. anguli ad C 17320508	} ad radium 10000000	{ Ita tangens compl. later. oppositi AB 20816713	} ad secantem compl. later. AC 12018535. part. 33 41' 25".
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Ergo si ipsum latus quadrante minus est, partium est 56 18' 35".

Vel per 17 primi hujus,

Ut radius 10000000	} ad tangent. ang. ad C 5773502	{ Ita tang. comp. late. op. positi AB 20816713	} ad secan. cōp. lateris AC 12018535.
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Vel:

Vel,

$$\left. \begin{array}{l} \text{Vt radius} \\ 10000000 \end{array} \right\} \begin{array}{l} \text{ad tangentem comp. an-} \\ \text{guli ad C } 17320508 \end{array} \left\{ \begin{array}{l} \text{Ita tangens later.} \\ \text{oppositi AB} \\ 4803831 \end{array} \right\} \begin{array}{l} \text{ad sinum lateris} \\ \text{reliqui AC} \\ 8320482. \end{array}$$

Tertio, dato utroque latere, datur angulorum obliquorum alteruter, sinus enim lateris alterutrius est ad radium; ut tangens reliqui lateris, ad tangentem anguli oppositi. Aut, secans complementi lateris alterutrius ad radium est: ut tangens complementi alterius lateris, ad tangentem complementi anguli oppositi. Aut, radius est ad sinum lateris alterutrius: ut tangens complementi reliqui lateris, ad tangentem complementi anguli oppositi. Vel, radius est ad secantem complementi lateris unius: ut tangens alterius, ad tangentem anguli oppositi.

Remoto superiori Triangulo ABC, detur latus AB part. 25 39' 32": AC partium 56 18' 35". invenietur angulus ad C partium 30. Nam per 4 sexti & 19 septimi Euclidis,

$$\left. \begin{array}{l} \text{Vt AE sinus} \\ \text{lateris AC} \\ 8320482 \end{array} \right\} \begin{array}{l} \text{ad GF radiu} \\ 10000000 \end{array} \left\{ \begin{array}{l} \text{Ita AD tan-} \\ \text{gens reliqui} \\ \text{lateris AB} \\ 4803831 \end{array} \right\} \begin{array}{l} \text{ad GH tangentem arcus I G. i.} \\ \text{ang. ad C oppositi } 5773502. \\ \text{partium } 30 : \text{ acuti per 9 hu-} \\ \text{jus, quia latus oppositum est} \\ \text{quadrante minus.} \end{array}$$

Aliter per 17 & 20 primi hujus,

$$\left. \begin{array}{l} \text{Vt secans cõp. lat.} \\ \text{AC } 12018535 \end{array} \right\} \begin{array}{l} \text{ad radium} \\ 10000000 \end{array} \left\{ \begin{array}{l} \text{Ita tangens cõp.} \\ \text{reliqui lateris} \\ \text{AB } 20816713 \end{array} \right\} \begin{array}{l} \text{ad tangentem compl. an-} \\ \text{guli ad C oppositi} \\ 17320508 \text{ par. } 60. \end{array}$$

Ergo ipse angulus est partium 30, ut supra.

Vel per 17 primi hujus,

$$\left. \begin{array}{l} \text{Vt radius} \\ 10000000 \end{array} \right\} \begin{array}{l} \text{ad sinum la-} \\ \text{teris AC} \\ 8320482. \end{array} \left\{ \begin{array}{l} \text{Ita tangens compl.} \\ \text{reliqui lateris AB} \\ 20816713 \end{array} \right\} \begin{array}{l} \text{ad tangentem comp. ang. ad C} \\ \text{oppositi } 17320508. \end{array}$$

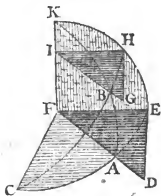
S 3

Vel

Vel per idem Theorema,

$$\left. \begin{array}{l} \text{Vt radius} \\ 10000000 \end{array} \right\} \begin{array}{l} \text{ad secantem cōp.} \\ \text{lateris AC} \end{array} \left\{ \begin{array}{l} \text{Ita tang. reli-} \\ \text{quis lat. AB} \end{array} \right. \begin{array}{l} \text{ad tangentem ang. ad C op-} \\ \text{positi 5773502.} \end{array}$$

$$\left. \begin{array}{l} 12018535 \\ 4803831 \end{array} \right\}$$



Quarto, data basi & angulo, investigatur latus adjacens. Nam ut sinus complementi anguli dati ad radium: ita tangens complementi basis est, ad tangentem complementi lateris dato angulo adjacentis. Vel, ut secans anguli dati est ad radium: ita tangens basis, ad tangentem lateris dato angulo adjacentis. Aut, radius est ad sinum complementi anguli dati; ut tangens basis ad tangentem lateris angulo dato

adjacentis. Aut, radius est ad secantem anguli dati: ut tangens complementi basis, ad tangentem complementi lateris dato angulo adjacentis.

Assumpto & hic Triangulo ABC rectangulo, desur basis BC part. 60: & angulus ad C partium 30. invenietur latus AC part. 56 18' 35". Nam per quartam sexti & 19 septimi Euclidis,

$$\left. \begin{array}{l} \text{Vt IH sinus ar-} \\ \text{cus KH compl.} \\ \text{HE .i. ang. ad} \\ \text{C 8660254} \end{array} \right\} \begin{array}{l} \text{ad FE radiū} \\ 10000000 \end{array} \left\{ \begin{array}{l} \text{Ita HG tangens} \\ \text{arcus HB .i. cō-} \\ \text{plementi basis} \\ \text{BC 5773502} \end{array} \right. \begin{array}{l} \text{ad ED tangentem ar-} \\ \text{cus EA .i. comp. late-} \\ \text{ris AC 6666665.} \\ \text{partium 33 41' 25".} \end{array}$$

Ergo ipsum latus AC est partium 56 18' 35". quadrante minus per 9 & 10 hujus. Nam propter angulum ad C acutum, latus AB quadrante minus est: propter basin verò etiam quadrante minorem, reliquum latus AC quadrante minus est.

Vel

Vel per 17 & 20 primi hujus,

$$\left. \begin{array}{l} \text{Vt secans an-} \\ \text{guli ad C} \\ 11547004 \end{array} \right\} \left. \begin{array}{l} \text{ad radium} \\ 10000000 \end{array} \right\} \left. \begin{array}{l} \text{Ita tangens basis} \\ 17320508 \end{array} \right\} \left. \begin{array}{l} \text{ad tangentem lateris AC} \\ \text{angulo dato adjacentis} \\ 15000000 \text{ partium} \\ 56 \text{ } 18' \text{ } 35''. \end{array} \right\}$$

Vel per 17 primi hujus,

$$\left. \begin{array}{l} \text{Vt radius} \\ 10000000 \end{array} \right\} \left. \begin{array}{l} \text{ad sinũ cõp.} \\ \text{ang. ad C} \\ 8660254 \end{array} \right\} \left. \begin{array}{l} \text{Ita tangens basis} \\ 17320508 \end{array} \right\} \left. \begin{array}{l} \text{ad tangen. lateris AC ang. dato} \\ \text{adjacentis } 15000000 \text{ par-} \\ \text{tium } 56 \text{ } 18' \text{ } 35''. \end{array} \right\}$$

Vel,

$$\left. \begin{array}{l} \text{Vt radius} \\ 10000000 \end{array} \right\} \left. \begin{array}{l} \text{ad secantem} \\ \text{anguli ad C} \\ 11547004 \end{array} \right\} \left. \begin{array}{l} \text{Ita tangens comp.} \\ \text{basis } 5773502 \end{array} \right\} \left. \begin{array}{l} \text{ad tangentem complementi la-} \\ \text{teris AC } 6666665. \text{ ut} \\ \text{supra.} \end{array} \right\}$$

Quinto, dato latere & angulo adjacente, invenitur basis. Radius enim est ad finum complementi anguli: ut tangens complementi lateris ad tangentem complementi basis. Aut, radius est ad secantem anguli, ut tangens lateris ad tangentem basis. Vel, sinus complementi anguli est ad radium, ut tangens lateris ad tangentem basis. Vel, secans anguli est ad radium; ut tangens complementi lateris ad tangentem complementi basis.

Manent & hic postremum nostrum diagramma, deturque in Triangulo ABC, latus AC partium 56 18' 35": angulusque ad C, part. 30. invenietur basis BC partium 60. Nam per quartam sexti & decimannam septimi Euclidis,

$$\left. \begin{array}{l} \text{Vt FE radius} \\ 10000000 \end{array} \right\} \left. \begin{array}{l} \text{ad IH sinum ar-} \\ \text{cus KH .i. comp.} \\ \text{HE, vel ang. ad} \\ \text{C, } 8660254 \end{array} \right\} \left. \begin{array}{l} \text{Ita tangens ED .i.} \\ \text{comp. lateris AC,} \\ 6666665 \end{array} \right\} \left. \begin{array}{l} \text{ad HG, tãgen-} \\ \text{tem HB, comp.} \\ \text{basis, } 5773502. \\ \text{partium } 30. \end{array} \right\}$$

Ergo basis est partium 60, quadrante minor per 10 hujus, quia utrumque
latus

latus singularem quadrante minus est: AC quidem ex thesi, AB vero propter angulum ad C acutum.

Vel per 17 & 20 Theorema primi hujus,

$$\left. \begin{array}{l} \text{Vt radius} \\ 10000000 \end{array} \right\} \begin{array}{l} \text{ad secantem ang.} \\ \text{ad C 11547004} \end{array} \left\{ \begin{array}{l} \text{Ita tangens lateris} \\ \text{AC 15000000} \end{array} \right\} \begin{array}{l} \text{ad tangentem basis} \\ 17320508, \text{ pa. 60.} \end{array}$$

Vel per 17 primi hujus,

$$\left. \begin{array}{l} \text{Vt sinus cõp. ang.} \\ \text{ad C 8660254} \end{array} \right\} \begin{array}{l} \text{ad radium} \\ 10000000 \end{array} \left\{ \begin{array}{l} \text{Ita tangens lateris} \\ \text{AC 15000000} \end{array} \right\} \begin{array}{l} \text{ad tangentem basis} \\ 17320508, \text{ pa. 60.} \end{array}$$

Vel per idem Theorema,

$$\left. \begin{array}{l} \text{Vt secans ang. ad} \\ \text{C 11547004} \end{array} \right\} \begin{array}{l} \text{ad radium} \\ 10000000 \end{array} \left\{ \begin{array}{l} \text{Ita tangens comple-} \\ \text{menti lateris AC} \\ 6666665 \end{array} \right\} \begin{array}{l} \text{ad tangentem comp. ba-} \\ \text{sis 5773502, ut} \\ \text{supra.} \end{array}$$

Sexto, data basi & latere, manifestatur angulus adjacens. Tangens enim complementi lateris dati est ad radium; ut tangens complementi basis ad sinum complementi anguli adjacentis. Vel, tangens lateris dati est ad radium; ut tangens basis ad secantem anguli adjacentis. Vel, radius est ad tangentem complementi lateris dati; ut tangens basis ad secantem anguli adjacentis. Vel, radius est ad tangentem lateris dati; ut tangens complementi basis, ad sinum complementi anguli adjacentis.

Reperitur & hic superiori Trianguli nostri figura, detur BC basis partium 60: latusque AC partium 56 18 35. inuenietur angulus ad C adjacens partium 30. Nam per 4 sexti & 19 septimi Euclidis,

$$\left. \begin{array}{l} \text{Vt ED tangens} \\ \text{arcus EA .i. cõp.} \\ \text{lueris AC} \\ 6666665. \end{array} \right\} \begin{array}{l} \text{ad FE radium} \\ 10000000 \end{array} \left\{ \begin{array}{l} \text{Ita GH tangens} \\ \text{arcus HB .i. com-} \\ \text{plem. basis BC} \\ 5773502 \end{array} \right\} \begin{array}{l} \text{ad IH sinũ arcus} \\ \text{KH .i. cõp. HE} \\ \text{vel anguli ad C} \\ 8660254, \text{ par. 60.} \end{array}$$

Ergo ipse angulus ad C est partium 30, acutus: basis enim CB est minor quadrante. Itaque per 10 hujus, utrumque latus AD & BD est qua-

quadrante circuli minus vel majus. Sed AD unum latus est quadrante minus ex thesi. itaque & reliquum BD: proinde oppositus angulus ad A per 9 hujus acutus est.

Aliter per 17 & 20 primi hujus,

$$\left. \begin{array}{l} \text{Vt tangens} \\ \text{lateris AC} \end{array} \right\} \begin{array}{l} \text{ad radium} \\ 10000000 \end{array} \left\{ \begin{array}{l} \text{Ita tangens basis} \\ 17320508 \end{array} \right\} \begin{array}{l} \text{ad secantem anguli ad C} \\ \text{adjacentis} \end{array} \left\{ \begin{array}{l} 11547002 \\ \text{partium 30.} \end{array} \right.$$

Vel per 17 primi hujus,

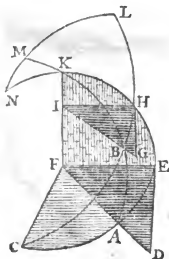
$$\left. \begin{array}{l} \text{Vt radius} \\ 10000000 \end{array} \right\} \begin{array}{l} \text{ad tangentem cōp. late-} \\ \text{ris AC} \end{array} \left\{ \begin{array}{l} \text{Ita tangens basis} \\ 17320508 \end{array} \right\} \begin{array}{l} \text{ad secantem ang. ad C} \\ 11547002, \text{ part. 30.} \end{array}$$

Vel,

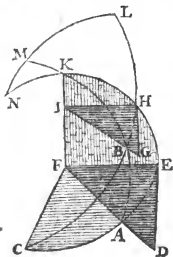
$$\left. \begin{array}{l} \text{Vt radius} \\ 10000000 \end{array} \right\} \begin{array}{l} \text{ad tangentem lateris} \\ \text{AC} \end{array} \left\{ \begin{array}{l} \text{Ita tangens comp.} \\ 15000000 \end{array} \right\} \begin{array}{l} \text{ad sinum compl. ang.} \\ \text{ad C} \end{array} \left\{ \begin{array}{l} \text{basis} \\ 8660254. \end{array} \right.$$

Septimo, data basi & angulo obliquo alterutro, invenitur reliquus. Nam ut sinus complementi basis est ad radium: ita

tangens complementi anguli, ad tangentem anguli reliqui. Aut, ut secans basis est ad radium; ita tangens anguli, ad tangentem complementi reliqui. Vel, ut radius est ad sinum complementi basis; ita tangens anguli, ad tangentem complementi reliqui. Vel, ut radius est ad secantem basis; ita tangens complementi anguli, ad tangentem reliqui.



Detur in Triangulo ABC, basis BC partium 60: & angulus ad C partium 30: dabitur reliquus ad B partium 40: & sinus



tium 73 53' 52". Repetitur enim figura, quæ fuit sexto porismæ Theorematis præmissi. Demonstratum fuit, illic, arcum HL æqualem esse basi BC, & mensuram esse anguli ad N, in Triangulo NMK rectangulo ad M: Item EH mensuram anguli ad C in Triangulo ABC, æqualem esse basi NK in Triangulo NMK; ML vero arcum, mensuram esse anguli ad B quæsiti, & MN complementum ejusdem. Quare cum in Triangulo NMK, detur angulus ad N, cum basi NK, dabitur etiam per quartum hujus NM, latus angulo adjacens, .i. complementum anguli ad B quæsiti. Nam,

$$\left. \begin{array}{l} \text{Vt sinus comp.} \\ \text{ang. ad N. i.} \\ \text{basis datae} \\ 5900000 \end{array} \right\} \begin{array}{l} \text{ad radium} \\ 10000000 \end{array} \left\{ \begin{array}{l} \text{Ita tangens comp.} \\ \text{basis NK. i. ang.} \\ \text{ad C } 17320508 \end{array} \right\} \begin{array}{l} \text{ad tangentem comp. MN. i.} \\ \text{ad tangentem arcus ML} \\ \text{vel ang. ad B } 34641016 \\ \text{part. } 73 \ 53' \ 52'' \text{ acuti.} \end{array}$$

Nam quia basis quadrante minor est, latera sunt quadrante majora, vel minoræ similiter per 10 hujus. Sed AB latus quadrante minus est per 9 hujus, propter angulum ad C oppositum acutum: Ergo & reliquum latus quadrante minus est, & reliquus angulus acutus. Aliiter per 17 vel 20 primi hujus,

$$\left. \begin{array}{l} \text{Vt secans basis} \\ 20000000 \end{array} \right\} \begin{array}{l} \text{ad radium} \\ 10000000 \end{array} \left\{ \begin{array}{l} \text{Ita tang. ang. ad C} \\ \text{anguli ad C} \\ 5773502 \end{array} \right\} \begin{array}{l} \text{ad tangentem complementi} \\ \text{anguli reliqui } 2886751 \\ \text{partium } 16 \ 6' \ 8''. \end{array}$$

Vel per 17 primi hujus,

$$\left. \begin{array}{l} \text{Vt radius} \\ 10000000 \end{array} \right\} \begin{array}{l} \text{ad sinum compl.} \\ \text{basis } 5000000 \end{array} \left\{ \begin{array}{l} \text{Ita tang. ang. ad C} \\ \text{C } 5773502 \end{array} \right\} \begin{array}{l} \text{ad tang. comp. anguli reli-} \\ \text{qui } 2886751. \end{array}$$

Vel per idem Theorema,

$$\left. \begin{array}{l} \text{Vt radius} \\ 10000000 \end{array} \right\} \begin{array}{l} \text{ad secantem basis} \\ 20000000 \end{array} \left\{ \begin{array}{l} \text{Ita tang. comp. ang.} \\ \text{ad C } 17320508 \end{array} \right\} \begin{array}{l} \text{ad tangent. ang. reli-} \\ \text{qui } 34641016. \end{array}$$

Postremo,

Postremo, dato utroque angulo obliquo datur basis. Tangens enim anguli alterutrius est ad radium; ut tangens complementi anguli reliqui, ad sinum complementi basis. Vel, tangens complementi anguli alterutrius est ad radium; ut tangens anguli reliqui ad secantem basis. Aut, radius est ad tangentem anguli alterutrius; ut tangens anguli reliqui ad secantem basis. Aut, radius est ad tangentem complementi anguli alterutrius; ut tangens complementi anguli reliqui ad sinum complementi basis.

Manente superiori diagrapha, detur angulus ad C part. 30: & reliquus ad B partium 73 53' 52". Dabitur basis BC partium 60. Assumatur enim & hic Triangulum NMK reſt angulum: in quo cum detur latus NM, complementum ſcilicet arcus ML .i. anguli ad B; & basis NK, æqualis arcui HE, .i. angulo reliquo ad C, datur etiam angulus ad N, vel arcus LH .i. basis BC. Nam per 6 poſitima hujus,

<i>Ut tangens compl.</i>	} ad radium	<i>Ita tangens comple.</i>	} ad ſinū comp. ang. ad	
NM .i. arcus ML		basis NK, .i. ar-		N .i. arcus LH vel
vel angul. ad B,		cus HE vel ang.		basis BC
34641016		ad C 17320508		partium 30.

Ergo basis est partium 60, quadrante minor per 11 hujus, quia angulus uterque acutus est.

Aliter per 17 & 20 Theorema primi hujus,

<i>Ut tangēs cōp. ang.</i>	} ad radium	<i>Ita tang. ang. ad</i>	} ad ſecantem basis
ad B 2886751		C 5773502	

Vel per 17 primi hujus,

<i>Ut radius</i>	{ ad tang. ang. ad	<i>Ita tangens anguli</i>	{ ad ſecantem basis
10000000		B 34641016	

Vel per idem Theorema,

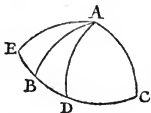
<i>Ut radius</i>	{ ad tang. comp. ang.	<i>Ita tang. comp. ang.</i>	{ ad ſinum compl. ba-
10000000		ad B 2886751	

Atque ita calculus reſt angulorum Triangulorum expoſitus eſt. Sequitur

Obliquangulorum Sphæricorum Calculus.

14. Triangulum obliquangulum Sphæricum est, cujus tres anguli obliqui sunt.

15. Si triangulum obliquangulum, acutos duos angulos aut obtusos habuerit, perpendicularis arcus, ab angulari puncto tertii egrediens, cadit intra triangulum: sin angulorum alter acutus, & reliquus obtusus extiterit, cadit extra.



Esto obliquangulum Triangulum ABC , acutus angulum ad B & C : dico perpendicularem AD , demissam ab A vertice anguli tertii, cadere intra Triangulum. Nam si non cadit intra: vel lateri alterutri coincidat, vel extra cadat necesse est. Si lateri alterutri coincidat: tunc angulus ad C , vel B rektus est, quod est contra thesin. Si extra cadit exempli gratia in E : angulus ad E rektus

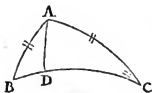
est. Sed angulus ABE obtusus est, reliquus scilicet acuti ABC . Itaque per 9 hujus, latus AE est majus circuli quadrante. Rursus quia angulus ad C acutus est in Triangulo AEC rektangulo, per citatum theorema, latus AC quadrante minus est. Itaque AE latus, commune utrique Triangulo AEB , & AEC , est quadrante majus & minus; quod absurdum est. Consequitur igitur perpendicularem cadere intra Triangulum datum.

Esto verò AEB triangulum, obtusangulum ad B : acutangulum ad E . Dico AD perpendicularem cadere extra Triangulum, in latus EB continuatum. Secus si non: vel lateri alterutri coincidit, vel intra cadit. Sed coincidere nequit, quia tunc alteruter angulorum ad B , vel E rektus esset: Intra cadere nequit, quia uterque angulorum ad B , & E , acutus esset, vel obtusus, ex prima parte hujus. Virumque est contra thesin. Consequitur igitur, perpendicularem extra Triangulum cadere, si alter angulorum acutus, & reliquus obtusus extiterit: quæ fuerunt demonstranda.

ΠΟΡΙΣΜΑΤΑ quatuor.

Primò itaque in Triangulo obliquangulo datis duobus lateribus,

ribus & angulo uni eorum opposito, insuper nota specie anguli alteri dato lateri oppositi, anguli reliqui latusque tertium inveniuntur. Demissus enim ab angulo datis lateribus contento, in oppositum latus (continuatum si oportet) perpendicularis arcus, obliquangulum Triangulum in duo rectangula secat, ex quorum calculo quæsitâ inveniuntur.



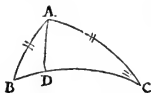
Esse Sphericum Triangulum ABC. obliquangulum: in quo dentur latera, AC part. 50, AB part. 26 22' 20", & angulus ad C part. 30, cum specie anguli ad B acuta; dantur anguli ad A & B, cum tertio latere BC. Descendat enim perpendicularis AD in latus BC, qui intra Triangulum cadit, propter utrumque angulum ad B & C acutum; finitque rectangula Triangula duo, ADC & ADB, daturque in Triangulo ADC basis AC part. 50, & angulus ad C part. 30. Itaque per primum porisma duodecimum hujus, AD est part. 22 31' 15": quadrante circuli minus, per 9 hujus, quia oppositus angulus acutus est.

Iam si queratur angulus ad B, dabitur adminiculo perpendicularis AD inventi. Nam in Triangulo ADB rectangulo, datur basis AB part. 26 22' 20", & latus AD part. 22 31' 15". Itaque per 2 porisma 12 hujus, angulus ad B est part. 59 34' 21" acutus per 9 hujus, quia oppositum latus quadrante minus est.

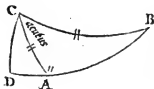
Eodem modo definitur angulus ad A. Nam in Triangulo ADB datur basis AB part. 26 22' 20", & latus AD part. 22 31' 15". Itaque per 6 porisma 13 hujus, angulus BAD est part. 33 14' 53", acutus. Nam quia basis AB est minor quadrante, utrumque latus AD & BD, quadrante minus est, aut majus. Sed AD latus minus est quadrante, itaque & BD. Quare per 9 hujus, angulus ad A oppositus acutus est. Rursus in Triangulo rectangulo ADC, datur basis AC part. 50, & angulus ad C part. 30, & latus AD part. 22 31' 15"; Itaque per 7 porisma 12, vel per 6, aut 7 decim tertii (plura enim hic data sunt) angulus DAC est part. 69 38' 20", acutus, quia basis & latus quadrante minor est. Anguli verò BAD, & CAD æquales sunt angulo BAC, ergo angulus BAC est part. 102 53' 13".

T. 3.

Quia



Quin & latus BC eadem methodo irvestigatur. In Triangulo enim rectangulo BAD datur basis AB part. 26 22' 20'', & latus AD part. 22 31' 15''. Quare per 4 porisma duodecimi hujus, BD est part. 14 5' 44'', quadrante minor per 10 hujus, quia basis cum dato latere sigillatim quadrante minores sunt. Præterea in Triangulo rectangulo ADC datur basis AC part. 50, angulus ad C partium 30, cum latere AD part. 22 31' 15''. Quare per 4 porisma 12 hujus, vel per 2 aut 4 decimertii, latus DC est part. 45 54' 16'', quadrante minus, quia basis & latus datum quadrante minus est. Iam cum BD sit part. 14 5' 44'', & DC part. 45 54' 16'', latus BDC, utriusque summa est part. 60.



Et sic quidem propositi Trianguli postulata immoescunt, perpendiculari intra Triangulum cadente: Diverſa autem parum est ratio, perpendiculari cadente extra. Eſto enim obliquangulum Triangulum ABC, in quo datur AC latus part. 26 22' 20'', BC partium 60, & angulus ad B part. 102 53' 13'', cum ſpecie anguli ad C acuta: Invenientur reliqui anguli ad C & B, cum latere tertio AB. Emiſſo enim perpendiculari arcu CD, ex angulari puncto datorum laterum C, cadente extra propter angulos ad A & C ſpecie diverſos, ſunt ut ſupra duo Triangula rectangula ADC & BDC, ex quorum calculo quaerita inveniuntur. In Triangulo enim ADC datur basis AC part. 26 22' 20'', cum angulo ad A part. 77 6' 47'', reliquo ſcilicet ipſius BAC ad ſemicirculum; itaque CD perpendicularis per primum porisma 12 hujus est part. 25 39' 32''.

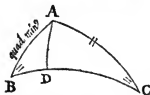
Secundo, in Triangulo BDC rectangulo datur basis BC part. 60, & latus CD part. 25 39' 32'', itaque per ſecundum porisma 12 hujus, angulus ad B est part. 30.

Tertio, in eodem Triangulo rectangulo BDC, datur basis BC part. 60, cum latere CD part. 25 39' 32'', ergo per 6 porisma 13 hujus, angulus BCD est part. 73 53' 52''. Item in Triangulo rectangulo ADC, datur basis AC part. 26 22' 20'', cum latere CD part. 25 39' 32'',
ergo

ergo per idem porisma angulus ACD est part. $14\ 19' 31''$. Ablato vero angulo ACD ex angulo BCD , relinquitur angulus ACB partium $59\ 34\ 21''$.

Postremo, in Triangulo rectangulo BDC , datur basis BC part. 60 , cum angulo ad C part. $73\ 53\ 52''$, ergo per primum porisma 12 hujus, latus angulo dato oppositum BD est part. $56\ 18' 35''$. Item in Triangulo rectangulo ADC datur basis AC part. $26\ 22' 20''$, cum angulo ad C part. $14\ 19' 31''$, ergo per idem porisma, latus AD angulo C oppositum est part. $6\ 18' 35''$. Aufer autem AD ex BD , & relinquitur latus AB part. 50 . *Quæ fuerunt investiganda.*

Secundo, datis duobus angulis, & latere uni eorum opposito, patefcunt reliqua latera, & angulus tertius, si modo coustiterit utrum latus ignotum dato angulo oppositum, quadrante majus fuerit an minus. Perpendicularis enim arcus eductus à termino lateris dati, in latus utrique angulo dato adjacens, (continuatum si oportet) obliquangulum in duo Triangula rectangula dividit, unde postulata innotescunt.

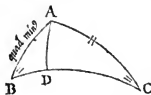


Datur ABC triangulum non rectangulum, & in eo latus AC part. 50 , cum angulis, ad C quidem part. 30 , sed ad B part. $59\ 34\ 21''$: sitque AB latus ignotum quadrante minus. Innotescunt hinc reliqua latera AB & DC , cum angulo tertio ad A .

Primum enim in Triangulo rectangulo ADC datur basis AC part. 50 , cum ang. ad C partium 30 . Ergo per primum porisma 12 hujus perpendicularis AD est part. $22\ 31' 15''$: caditque intra Triangulum, quia B & C anguli dati sunt acuti.

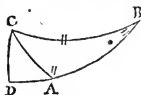
Secundo, in Triangulo rectangulo ADB datur latus AD part. $22\ 31' 15''$, cum opposito angulo B part. $59\ 34' 21''$; itaque basis AB , per 3 porisma 12 hujus, est part. $26\ 22' 20''$, quadrante minor ex thesi.

Tertio, in Triangulo ADB rectangulo, ex latere AD part. $22\ 31' 15''$, & angulo B part. $59\ 34' 21''$, datur latus BD per idem porisma partium $14\ 5' 44''$, quadrante minus, propter AB basin quadrante minorem. Item in Triangulo ADC rectangulo, ex latere AD part. $22\ 31' 15''$,
 & ang.



Et ang. C part. 30 (vel ex aliis, quia plura data sunt) datur latus DC part. 45 54' 16". Summa vero laterum BD & DC, part. 60, æquatur lateri BC.

Postremo, in Triangulo rectangulo ADC, propter datam basim AC, cum latere DC, & angulo C, invenitur angulus DAC partium 69 38' 20". Item in Triangulo rectangulo ADB, ex data basi AB, & latere BD, cum angulo B, patet angulus BAD part. 33 14' 53". Summa vero angulorum DAC & BAD, æqualis est angulo BAC tertio, part. 102 53' 13".



Ex sic postulata porismatis nostri investigata sunt, perpendiculari arcu cadente intra Triangulum. Similis fere est ratio si cadat extra. Detur enim in appposito Triangulo ABC obliquangulo, angulus ad A part. 102 53' 13", ad B part. 30, cum latere BC part. 60; innatescent hinc reliqua latera & angulus tertius.

Primum enim, quia perpendicularis CD cadit extra, datur in Triangulo rectangulo BDC, basis BC partium 60, cum angulo C part. 30. Quare per primum porisma 12 huius, perpendicularis CD est partium 25 39' 32".

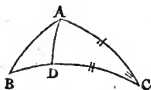
Secundo, in Triangulo rectangulo ACD, datur perpendicularis CD part. 25 39' 32", cum angulo ad A, residuo scilicet ipsius BAC ad semicirculum part. 77 6' 47"; Ergo per secundum porisma 13 huius, angulus ACD est part. 14 19' 31". Item in Triangulo rectangulo BCD, datur perpendicularis CD part. 25 39' 32", & angulus ad B part. 30. Ergo per idem porisma, vel per alia quia plura data sunt, angulus BCD est part. 73 53' 52". Ausus autem angulum ACD ex angulo BCD, & reliquus erit angulus tertius ACB part. 59 34' 21".

Tertio, in Triangulo rectangulo ADC, ex dato utroque angulo C & A cum latere CD, datur reliquum latus DA part. 6 18' 35". Item in Triangulo rectangulo BDC, ex dato utroque angulo B & C, etiam latere CD, & basi BC, multis modis manifestatur latus BD part. 56 18' 35". Tolle autem latus DA part. 6 18' 35", ex latere BD part. 56 18' 35", & remanebit latus AB part. 50.

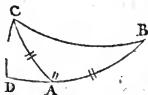
Postremo

Postremo, in Triangulo rectangulo ADC ex dato utroque angulo C & A , atque etiam utroque latere CD & AD , variis modis putescis basis AC part. $26^{\circ} 22' 20''$; Quæ fuerunt investiganda.

Tertio, datis duobus lateribus, & angulo ab iis comprehenso, tertium latus, & anguli reliqui innotescunt. Perpendicularis enim arcus, à termino lateris alterutrius dati, in reliquum datum (si necesse sit productum) emissus, obliquangulum triangulum in duo rectangula partitur, ex quorum calculo ignota manifestantur.



Est obliquangulum Triangulum ABC , in quo dentur latera AC part. 50 , BC part. 60 , cum angulo ad C ab iis comprehenso part. 30 . Perpendicularis AD ut supra invenitur part. $22^{\circ} 31' 15''$, caditque intra Triangulum, ut calculus docebit. Latus enim CD in Triangulo rectangulo ADC , invenitur per 4 porisma 12 huius, vel per alia, quia plura data sunt, part. $45^{\circ} 54' 16''$, minus latere BC part. 60 . Itaque BD est part. $14^{\circ} 5' 44''$, & perpendicularis AD intra Triangulum cadit. Porro ex lateribus AD & BD in Triangulo rectangulo ADB cognitis, invenitur basis AB , per 5 porisma duodecimi huius part. $26^{\circ} 22' 20''$. Item angulus ad B , per tertium porisma decimiertii huius, vel per alia, quia plura data sunt, partium $59^{\circ} 34' 21''$. Postremo, angulus BAD in eodem Triangulo ADB , invenitur part. $33^{\circ} 14' 53''$; & angulus DAC in Triangulo ADC part. $69^{\circ} 38' 20''$. Ergo angulus BAC utriusque summa est part. $102^{\circ} 53' 13''$.



Dentur vero in Triangulo obliquangulo ABC appposito latera, AB partium 50 , AC part. $26^{\circ} 22' 20''$, cum angulo A incluso part. $102^{\circ} 53' 13''$; perpendicularis DC erit part. $25^{\circ} 39' 32''$, ut supra, quadrante minor. Nam angulus CAD est acutus, residuus sc. CAB obtusi, & basis AC est minor quadrante. Itaque perpendicularis arcus CD cadit extra. Dantur autem in Triangulo ADC rectangulo latus CD part.

V

part.

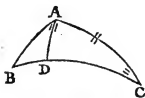


part. 25 39' 32'', & angulus ad A part. 77 6' 47'', reliquus scilicet anguli CAB, ad semicirculum: ergo latus DA est part. 6 18' 35''. AB vero est part. 50: totus igitur arcus DAB est part. 56 18' 35''.

Secundo, in Triangulo BDC rectangulo dantur latera, CD part. 25 39' 32'', & DB part. 56 18' 35'', ergo basis BC invenitur part. 60, angulus ad C part. 30, & angulus BCD part. 73 53' 52''.

Tandem in Triangulo ADC rectangulo, reperitur angulus ACD partium 14 19' 31'', qui subductus ex angulo BCD part. 73 53' 52'', relinquit angulum ACB part. 59 34' 21''. Quæ fuerunt indaganda.

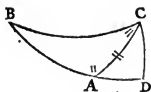
Postremo datis duobus angulis, una cum latere utrique adjacenti, reliqua latera, & angulus tertius investigantur. Perpendicularis enim arcus ab angulo alterutro in oppositum latus (continuatum si oportet) egrediens, obliquangulum Triangulum in duo rectangula secat, ex quorum calculo quaesita dantur.



Esto Triangulum ABC non rectangulum, sitque angulus ad A part. 102 53' 13'', ad C part. 30, & latus AC part. 50. Erit AD part. 22 31' 15'', latus scilicet Trianguli rectanguli ADC: & angulus CAD part. 69 38' 20'', minor angulo BAC dato; ergo reliquus BAD est partium 33 14' 53'', & proinde perpendicularis

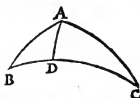
intra Triangulum cadit. Hinc in Triangulo ADB invenitur latus AB (ex dato latere AD, cum angulo ad A) part. 26 22' 20'': item angulus tertius ad B part. 59 34' 21'', cum latere BD, part. 14 5' 44''. Latus vero DC invenitur in Triangulo ADC, part. 45 54' 16''. Ergo totum latus BDC est part. 60.

Sit vero angulus ad A in Triangulo appposito ABC part. 102 53' 13'', ad C part. 59 34' 21'', & latus AC part. 26 22' 20'': invenietur CD perpendicularis part. 25 39' 32'', quadrante minor; ergo angulus ad B, in Triangulo rectangulo BDC, per 9 huius acutus est, & perpendicularis cadit extra; anguli enim ad A & B specie diversi sunt. Hinc reperimur,



itur, primū in Triangulo ADC, latus DA
part. 6 18' 35'', & in Triangulo CDB,
latus DB part. 56 18' 35''. Aufer autem
DA ex DB, & reliquum erit latus AB
part. 50. Adhuc in eodem triangulo CDB,
invenitur angulus tertius ad B part. 30, &
latus BC part. 60. Quæ fuerunt indaganda.

16. In obliquangulo Triangulo finus angularum finibus
oppofitorum laterum directe proportionales sunt.



Eslo ut supra obliquangulum Triangulum
ABC, ſectum per AD perpendicularē, in
duo Triangula rectangula ADC & ADB;
dico finem anguli B eſſe ad finem lateris oppoſi-
ti AC, ut finem anguli C ad finem oppoſiti
lateris AB. Nam per 7 porisma 12 huius eſt,

Vi finis ang. B, ad finem lateris AD, ita finis ang. D, ad finem lat. AB.

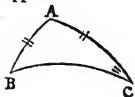
Item ut finis ang. C ad finem lateris AD, ita finis ang. D, ad finem
lateris AC.

Atque per 19 Septimi Euclidis, factus à finis AD in finem ang. D æ-
quatur factus à finis B in finem AB, & factus à finis C in finem AC.
Itaque per eandem,

Vi finis ang. B ad finem oppoſiti lateris AC, ita finis ang. C ad finem
oppoſiti lateris AB. Eademque eſt ratio in reliquo angulo A, & oppoſito la-
tere BC. Quod erat demonſtrandum.

ΠΟΡΙΣΜΑΤΑ duo.

Primum igitur datis duobus lateribus, cum angulo uni da-
torum laterum oppoſito, manifeſtatur angulus, alteri datorum
laterum oppoſitus. Eſt enim ut finis lateris dati ad finem an-
guli oppoſiti; ita finis lateris alterius dati, ad finem anguli
oppoſiti.



In exemplo dentur in obliquangulo Triangulo
ABC appoſito duo latera, AB part. 26 22'
20'', AC part. 50, cum angulo ad C par-
tium 30. Invenitur angulus ad B partium 59
34' 21''. Nam

V 2

V 3

Vi sinus lateris AB 4442009 ad sinum anguli oppositi C 5000000, ita sinus lateris BC 7660445 ad sinum anguli oppositi D 8622725, partium 59 34' 21".

Secundo, datis duobus angulis, cum latere uni datorum angulorum opposito, invenitur latus alteri datorum angulorum oppositus. Nam ut sinus anguli dati ad sinum lateris oppositi, ita sinus alterius anguli dati, ad sinum lateris oppositi.



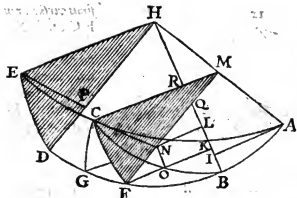
Exempli causa, dentur in Triangulo obliquangulo ABC duo anguli, unus ad C partium 30, alter ad B part. 59 34' 21", cum latere AB part. 26 22' 20": Invenietur AC latus part. 50. Nam

Vi sinus anguli C 5000000, ad sinum AB lateris oppositi 4442009: Ita sinus anguli B 8622725, ad sinum AC lateris oppositi 7660445 part. 50, ut supra.

17. In obliquangulo triangulo, quadratum radii est ad planum sinuum rectorum laterum duorum, ut sinus versus anguli ab iisdem comprehensi, ad differentiam sinuum verforum tertii lateris, & reliquorum laterum differentia. Quadratum autem radii est ad planum sinuum rectorum angulorum duorum, ut sinus versus lateris, utrique angulo adjacentis, ad differentiam sinuum verforum tertii anguli, & differentia datorum angulorum unius, & alterius ad femicirculum completi.

Hoc Theorema verum est in omni Triangulo, tum reſtanguſo, tum obliquangulo, verum quia uſus ejus poſſiſſimus eſt in Triangulis obliquangulis, ideo hic de obliquangulis uſq; iſcoſulo enumeratur. Sit igitur Sphæricum Triangulum ABC obliquangulum, cujus latera AB & AC inæqualia, & ſigillatim quadrante circuli minora, producantur in E & D, ut ACE & ABD quadrantes ſint maximorum circulorum. Faſto verò A polo, deſcribatur arcus DE intervallo AD; & arcus CF intervallo AF; erit tunc arcus DE per 8 hujus meſſura anguli ad A; arcus verò AF æqualis erit arcui AC. Item polo B, & diſtantiâ BC deſcribatur arcus CG, qui æqua-

lis



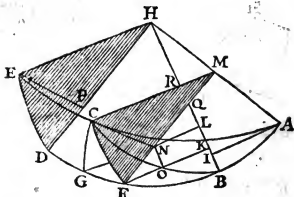
lis erit arcus BC ;
 & proinde arcus
 BF differentia
 erit laterum AC
 & AB , & ar-
 cus GF diffe-
 rentia tertii lateris
 BC , & reliquo-
 rum laterum diffe-
 rentia BF . E-
 mittantur deinde
 ex H communi
 centro quadran-
 tum AD &
 AF , semidiamet-

ri HA , HB , & HD , in puncta A , B , D ; & à terminis arcuum
 AB , BF , & BG , demittantur perpendiculares AI , FK , & GL ,
 in semidiametrum HB ; erunt hæc arcuum dictorum recti sinus, per 7 primi
 huius; BI autem, BK , & BL , versi sinus eorundem per 10 ejusdem;
 & proinde KL differentia sinuum versorum lateris BC vel BG , & reli-
 quorum laterum differentia BF . Præterea à termino arcus AF descendat
 perpendicularis FM in semidiametrum HA , erit hæc sinus rectus lateris
 AF . Vbi autem GL & FM sese interfecant sit N punctum, ex quo ducatur
 NO parallela HB ; adeoque per 34 primi elementorum æqualis ipsi
 KL . Adhæc à termino arcus DE , demittatur perpendicularis EP in
 semidiametrum HD , erit hæc sinus rectus arcus DE ; & DP sinus ver-
 sus ejusdem. Postremo à C communi termino arcuum FC & GC ducatur
 recta CN in N , sectionem rectarum GL & FM ; erit hæc norma-
 lis rectis GN & FN . Arcus enim FC & GC per 5 huius norma-
 les sunt quadrantis ABD , transeuntis per A & B polos eorundem. Itaque
 communis eorum sectio, quæ per 3 undecimi Euclidis est recta linea, nempe
 CN , est plano quadrantis ABD normalis, per 19 ejusdem. Transit autem
 sectio communis arcuum dictorum per N punctum, ex conversione definitionis
 lineæ perpendiculariter super planum erectæ. Quare CN est sinus rectus ar-
 cus FC , & FN sinus versus ejusdem.

His verò in hunc modum expeditis, dico DH radium esse ad FM sinum
 rectum lateris AC , ut DP sinus versus anguli ad A , ad FN , sinum
 versum arcus FC . Item HA radium esse ad AI , sinum rectum lateris

V 3

AB.



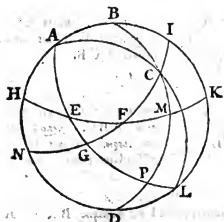
AB, ut FN
sinus versus arcus
FC, ad NO
differentiam si-
numum versorum
tertii lateris, & re-
liquorum laterum
differentie. Hoc
est, per multiplicacionem termino-
rum, quadratum
radii esse ad pla-
num sinuum recto-
rum FM &
AI, ut DP si-

mus versus anguli ad A ab iisdem lateribus comprehensi, ad NO differentiam
sinuum versorum tertii lateris, & reliquorum laterum differentie. Triangula
enim HEP, & MCN sunt equiangulara, ob rectos angulos ad P & N,
equalem ad H & M, inclinationis scilicet angulum quadrantis ACE, ad
quadrantem AFD. Itaque per 4. Sexti Euclidis, latera habent proportiona-
lia. Quare ut EH ad CM, ita PH ad NM. Et quia DH ex fa-
brica aequatur ipsi DH, & FM ipsi CM, DH est ad FM, ut
PH ad NM: adeoque per 5. Quinti Euclidis, ut DH ad FM, ita
DP ad FN. Secundo Triangula FON & FKO & HMQ
sunt equiangulara, ob rectos angulos ad O & K, communem ad F. Item
triangula HMQ & HAI sunt equiangulara, ob rectos angulos ad M & I,
communem ad H; itaque per 4. Sexti elementorum HA est ad AI, ut
FN ad NO. Quod erat demonstrandum.

Ita verò patet veritas primæ partis Theorematis huius. Est enim Triangu-
lum propositum, laterum sit quadrante circuli minorum, valet tamen superior ra-
tioniatio in Triangulis, quorum latera comprehendunt angulum, vel quadrante
circuli maiora sunt, vel unum majus, alterum minus. Nam ex 7. primi hu-
jus, sinus rectus duobus peripheriis communis est, unâ, circuli quadrante minori;
alteri, quadrante circuli maiori. Imo si latera æqualia dentur, non absimilis est
argumentandi forma, nisi quod NO tunc sit tertii lateris sinus versus.

Secunda porro pars Theorematis, quam jure Nobis vendicamus, quod à No-
bis primum inventa sit, eodem modo demonstratur quo prima, si prius novum de-
scribatur Triangulum, per polos laterum Trianguli dati. Huius enim latera an-
gulis,

gulis, & anguli lateribus primi Trianguli ita respondent, ut in secunda parte Theorematis eadem ferè ratione argumentari liceat, quâ in prima, sicuti ex sequentibus evadet manifestum.

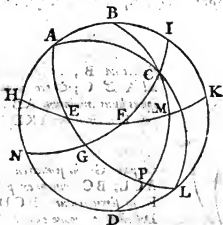


Sic enim Triangulum ABC idem quod supra, obtusangulum scilicet ad B, acutangulum ad A & C; & producatur ipsius latus minimum AB ex polo F in circulum AKDA: reliqua vero latera producantur in semicirculos, AC quidem ex polo G in semicirculum ACL, BC autem ex polo E in semicirculum BCD. Describatur quoque ex polo A semicirculus NFI transiens per polos G & F; & ex polo B semicirculus HFK, transiens per polos E & F; tandemque ex polo C semicirculus AGL, transiens per polos E & G; habebimus tunc novum Triangulum Sphericum EFG, cujus tria latera respondebunt tribus angulis Trianguli ABC; & hujus tria latera respondebunt tribus angulis Trianguli EGF. Nam quod ad latera Trianguli EGF attinet, primum latus EF æquale est residuo anguli ABC ad semicirculum. Nam E est polus semicirculi BMD, & F est polus semicirculi BKD, & proinde EM & FK sunt circuli quadrantes. Ablato igitur communi medio FM, relinquuntur arcus EF & MK æquales. Atqui MK subtendit angulum MBK per 8 hujus, hoc est residuum anguli ABC ad semicirculum. Itaque latus EF est æquale residuo anguli ABC ad semicirculum.

Secundo, latus GF æquatur angulo BAC. Nam F est polus semicirculi BKD, & G est polus semicirculi ACL: ideoque GC & FI sunt circuli quadrantes. Remoto igitur communi medio FC, remanent arcus GF & CI æquales. Sed CI est mensura anguli BAC, per 8 hujus. Ergo latus GF est æquale angulo BAC.

Tertio, latus GE est æquale angulo ACB. Nam G est polus semicirculi ACL, & E est polus semicirculi BMD: itaque EP & GL sunt

sunt



sunt circuli quadrantes. Dempto igitur communi medio GP, reliqui arcus EG & PL æquantur. Sed PL metiunt angulum ad C per octavum huius, hoc est angulum ACB. Ergo latus GE est æquale angulo ACB.

Atque ita demonstratum est tria latera Trianguli EFG respondere tribus angulis trianguli ABC. Quod autem tres anguli trianguli EFG, respondeant tribus lateribus trianguli ABC ita ostenditur.

Primo, angulus EFG æqualis est lateri AB. Nam A est polus semicirculi NFI, & B est polus semicirculi HFK. Itaque BK & AI sunt circuli quadrantes. Quare ablato communi medio BI, residui arcus BK & AI sunt æquales. Atqui IK mensurat per 8 huius angulum IFK, id est angulum EFG. Quare angulus EFG est æqualis lateri AB.

Secundo, angulus FEG est æqualis lateri BC. Nam B est polus semicirculi HFK, & C est polus semicirculi AGL. Quare DM & PC sunt quadrantes circuli; à quibus remoto communi medio CM, residui arcus PM & BC æquantur. At verò PM per 8 huius est mensura anguli PEM, id est anguli FEG. Quamobrem angulus FEG est æqualis lateri BC.

Tertio, angulus EGF est æqualis complemento lateris AC. Nam B est polus semicirculi HFK, & C est polus semicirculi AGL. Itaque BG & CG sunt circuli quadrantes. Arcus autem AC, per 8 huius metiunt angulum AGC, id est EGF. Ergo angulus EGF æqualis est complemento lateris AC. Nam quia EF non metiunt angulum ABC, sed residuum ad semicirculum MBK, idcirco etiam angulus G oppositus lateri EF non metiunt latus AC, sed ipsius complementum ad semicirculum CL.

Apparet autem ex hac demonstratione veritas secunde partis Theorematis nostri. Nam quia latera & anguli secundi Trianguli EFG respondent angulis & lateribus Trianguli primi ABC, eo modo quo ante demonstravimus, sequi-

sequitur sane ex eo, eandem esse proportionem laterum & angulorum in triangulo secundo, quæ supra demonstrata est in primo. Sunt ergo termini proportionales in primo Triangulo isti

Primò, secundum demonstrationem primæ partis Theorematis.

⁸ D H radius	⁶ F M sinus rectus lateris A C	⁴ D P sinus versus anguli dati	³ F N quartus
⁸ A H radius	⁴ A I sinus rectus lateris A B	³ F N quartus	^{1 1/2} N O differentia sinuum versorum tertii lateris &c.

Secundò, per multiplicationem terminorum.

⁶⁴ Quadratum radii D H vel A H	²⁴ Plurimum sinuum recto- rum F M & A I	⁴ D P sinus versus anguli dati.	^{1 1/2} N O differentia sinuum versorum tertii lateris &c.
---	--	--	--

Tertiò, per terminorum transpositionem.

⁸ A H radius	⁶ F M sinus rectus lateris A C	⁴ A I sinus rectus lateris A B	³ F N quartus
⁸ D H radius	³ F N quartus	⁴ D P sinus versus anguli dati.	^{1 1/2} N O differen- tia sinuum &c.

Tot modis licet variare proportionum terminos, in prima Theorematis parte. Ve-
rum quia tertius modus & facilius est, & ad usum maxime accommodatus, ideo
eum cæteris præsumimus, & in sequentibus porismatibus usurpavimus.

ΠΟΡΙΣΜΑΤΑ quatuor.

Primum itaque in obliquangulo triangulo, datis duobus la-
teribus & angulo ab iis comprehenso, investigatur latus ter-
tium. Radius enim est ad sinum rectum lateris unius dati, ut
sinus rectus lateris alterius dati ad quartum. Item Radius est
X ad

Secundo, datis tribus lateribus, invenitur angulus cuivis lateri oppositus. Nam Radius est ad sinum rectum lateris unius quæsito angulo adjacentis, ut sinus rectus alterius lateris quæsito angulo adjacentis, ad quartum. At quartus est ad radium, ut differentia sinuum versorum tertii lateris & reliquorum laterum differentia, ad sinum versum anguli quæsiti.

Manente & hic superiore Trianguli nostri schemate, datur AB latus part. 50, ejusque rectus sinus 7660445; AC part. 60, & rectus ejus sinus 8660254, BC part. 26 22" 20", cum NO 888806, differentia sinuum versorum tertii lateris BC (1040728) & KB reliquorum laterum differentia (part. 10, 151922) invenietur angulus ad A part. 30. Nam

ut AH	ad FM,	ita AI	ad FN
10000000	8660254,	7660445	6634139
Sed ut FN	ad DH,	ita NO	ad DE
6634139	10000000,	888806	1339746. sin.

versum anguli ad C part. 30, omnia ut supra.

Tertio, datis duobus angulis, & latere utrique adjacente invenitur angulus tertius. Nam radius est ad sinum rectum anguli unius dati, ut sinus rectus alterius anguli dati ad quartum. Item radius est ad quartum, ut sinus versus lateris dati ad differentiam sinuum versorum tertii anguli, & differentia anguli unius dati, & alterius ad semicirculum residui. Hæc ergo differentia ad sinum versum differentia anguli unius dati, & alterius ad semicirculum residui adjecta, componit sinum versum anguli quæsiti.

Exempli gratia, datur in Triangulo ABC præmissio, duo anguli A & B, cum interjecto latere AB: sitque angulus ad A part. 30, & sinus ejus rectus 5000000; angulus ad B part. 102 53' 13"; & sinus ejus rectus 9748131; latus AB part. 50, ejusque sinus versus 3572124; denique differentia angulorum duorum unius, & alterius ad semicirculum residui part. 47 6' 47", & ipsius sinus versus 3194423. Invenietur ex his, tertius angulus ad C part. 59 34' 20". Nam

ut 10000000	ad 9748131,	ita 5000000	ad 4874065
Radius	sinus rect. ang. B.	sinus rect. ang. A	Quartum
Item ut 10000000	ad 4874065,	ita 3572124	ad 1741076
Radius	quartum	sinus vers. lat. AB	

X 2

reptum

uentum sinuum verforum anguli tertii, & differentie anguli unius dati, & reliqui ad semicirculum residui.

Hæc igitur differentia addita ad sinum versum differentie anguli unius dati, & alterius ad semicirculum complementi 3194423, componit sinum versum anguli ad C, 4935499 part. 59 34' 21'', non aliter quam supra inventus est.

Postremo, datis tribus angulis, manifestatur latus cuicunque angulo oppositum. Nam radius est ad sinum rectum anguli unius quæsito lateri adjacentis, ut sinus rectus anguli alterius quæsito lateri adjacentis ad quartum. Sed quartus est ad radium, ut differentia sinuum verforum tertii anguli, & datorum angulorum unius, & alterius ad semicirculum residui, ad sinum versum lateris quæsiti.

Resumatur Triangulum ABC sphericum superius, denturque in illo tres anguli, A partium 30, & sinus ejus rectus 5000000; B part. 102 53' 13'', ejusque sinus rectus 9748131; C part. 59 34' 21'': & proinde differentia anguli A, & complementi anguli B ad semicirculum partium 47 6' 47'', & sinus illius versus 1741072. Queritur ex his latus AB oppositum angulo C. Invenitur part. 50. Nam

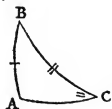
ut 10000000	ad 9748131	ita 5000000,	ad 4874065.
Radius.	sinus rect. ang. B	sinus rect. ang. A	Quartum

Sed ut 4874065	ad 10000000	ita 1741072	ad 3572124
Quartus	Radius	diff. sin. verfor. &c.	sinum ver-
sum AB lateris quæsiti part. 50,	omnino ut supra.		

Hucusque Sphæricorum Triangulorum calculum explicuimus; & ita, ut quæ speciatim ab aliis, & prolixè valde proposita sunt, commodius, faciliusque hinc investigentur. Tuum erit, lector, his mihi, quippe ad usum accommodatis, ad quem studia nostra omnia referri oportet. Quod si quædam concisa nimis, obscuraque videntur, tenendum est hoc doctrinæ genus attentionem, & indefessum studium requirere, etiam quum perspicue proponitur. Subjicimus verò & hic superioris doctrinæ summam in Tabula, ut promptè unumquodque postulatam investigari possit.

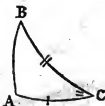
In Triangulo rectangulo
invenitur

L A T V S,



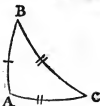
Ex basi, & angulo quæsito lateri opposito,
per primum porisma 12 hujus.

ut radius	ad sinum basis	ita sinus ang.	ad sinum lat. oppos.
ut radius	ad secant. comp. basis	ita sec. compl. ang.	ad sec. comp. lat. opp.
ut sinus basis	ad radium	ita sec. compl. ang.	ad sec. comp. lat. opp.
ut sec. comp. bas.	ad radium	ita sinus ang.	ad sin. lat. oppositi.



Ex basi, & angulo adjacente lateri quæ-
sito, per quartum porisma
13 hujus.

ut radius	ad sinum comp. ang.	ita tang. basis	ad tang. lateris
ut radius	ad secant. anguli	ita tang. comp. bas.	ad tang. comp. lat.
ut sin. comp. ang.	ad radium	ita tang. comp. bas.	ad tang. comp. lat.
ut sec. ang.	ad radium	ita tangens basis	ad tang. lateris.

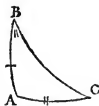


Ex basi, & altero latere, per quartum
porisma 12 hujus.

ut radius	ad sin. compl. lat. dati,	ita secans basis	ad sec. reliqui lat.
ut radius	ad secantem lat. dati	ita sin. comp. bas.	ad sin. comp. rel. lat.
ut sin. comp. lat. dati	ad radium,	ita sin. comp. bas.	ad sin. comp. rel. lat.
ut secans lat. dati	ad radium,	ita secans basis	ad sec. reliqui lat.

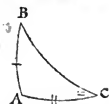
X 3

Ex an-



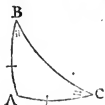
Ex angulo, & latere opposito, si constiterit
quadrantene majus sit an minus, per
secundum porisma 13 hujus.

ut radius	ad tang. anguli,	ita tang. cōp. lat. dati,	ad sec. comp. lat. rel.
ut radius	ad tang. comp. ang.	ita tang. lat. dati,	ad sin. lat. reliqui.
ut tang. ang.	ad radium,	ita tang. lat. dati,	ad sin. lat. reliqui.
ut tang. cōp. ang.	ad radium,	ita tang. cōp. lat. dati	ad sec. comp. lat. rel.



Ex angulo, & latere adjacente, per pri-
mum porisma 13 hujus.

ut radius	ad sinum lat. dati,	ita tang. ang.	ad tang. lat. reliq.
ut radius	ad sec. cōp. lat. dati,	ita tang. comp. ang.	ad tang. cōp. lat. rel.
ut sinus lateris dati	ad radium,	ita tang. comp. ang.	ad tang. cōp. lat. rel.
ut sec. comp. lat. dati	ad radium,	ita tang. anguli	ad tang. lat. reliqui.



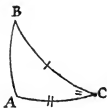
Ex utroque angulo obliquo, per octauum
porisma 12 hujus.

ut radius	ad sinum ang. unius,	ita secans ang. alter.	ad sec. later. opp.
ut radius	ad sec. cōp. ang. unius	ita sin. cōp. ang. alt.	ad sin. cōp. lat. opp.
ut sin. ang. unius	ad radium	ita sin. cōp. ang. alt.	ad sin. cōp. lat. opp.
ut sec. cōp. ang. uni.	ad radium	ita sec. ang. reliqui	ad sec. lat. oppo.

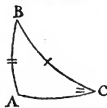
B A S I S

BASIS

Ex latere & angulo adjacente, per quintum
porisma 13 hujus.

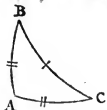


ut radius ^I	ad secant. anguli, ^{II}	ita tang. lateris ^{III}	ad tangent. basis. ^{IIII}
ut radius	ad sin. comp. ang.	ita tang. cōp. lat.	ad tang. cōp. basis.
ut sec. anguli	ad radium	ita tang. cōp. lat.	ad tang. cōp. basis.
ut sin. cōp. ang.	ad radium	ita tang. lateris	ad tangent. basis.



Ex latere & angulo opposito; si constiterit
quadrantene major sit, an minor. per
tertium porisma 12 hujus.

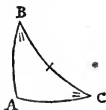
ut radius ^I	ad sec. compl. ang. ^{II}	ita sinus lateris ^{III}	ad sinum basis. ^{IIII}
ut radius	ad sinum anguli,	ita sec. comp. lat.	ad secant. comp. bas.
ut sec. cōp. ang.	ad radium	ita sec. comp. lat.	ad secant. comp. bas.
ut sinus anguli	ad radium;	ita sinus lateris	ad sinum basis



Ex utroque latere, per quintum
porisma 12 hujus.

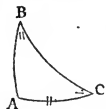
ut radius ^I	ad sec. later. unius,	ita sec. lat. alter. ^{III}	ad sec. basis ^{IIII}
ut radius	ad sin. cōp. lat. unius.	ita sin. cōp. lat. alt.	ad sinū comp. bas.
ut sec. lateris unius,	ad radium,	ita sin. cōp. lat. alt.	ad sin. comp. bas.
ut sin. cōp. lat. unius	ad radium,	ita secans lat. alt.	ad secantē basis.

Ex utro-



Ex utroque angulo obliquo, per octa-
vum porisma 13 hujus.

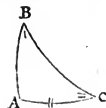
ut radius	^{II} ad tang. ang. unius,	^{III} ita tang. ang. alter.	^{IIII} ad secantē basis
ut radius	ad tang. cōp. ang. uni.	ita tang. cōp. ang. alt.	ad sin. cōp. bas.
ut tang. ang. unius	ad radium,	ita tang. cōp. ang. alt.	ad sin. cōp. bas.
ut tang. cōp. ang. uni.	ad radium,	ita tang. ang. alter.	ad secantē basis.



ANGVLVS

Ex latere & dato angulo opposito, si spe-
cies quæsitæ anguli nota sit; per 7
porisma 12 hujus.

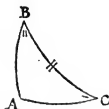
ut radius	^{II} ad secantem lateris	^{III} ita sin. comp. ang. dati	^{IIII} ad sinum reliqui
ut radius	ad sinum comp. lat.	ita secans ang. dati	ad secantē cōp. reliq.
ut secans lat.	ad radium,	ita secans ang. dati	ad secantē comp. reliq.
ut sinus cōp. lat.	ad radium,	ita sin. comp. ang. dati,	ad sinum reliqui.



Ex latere & dato angulo adjacente, per
sextum porisma 12 hujus.

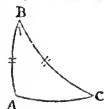
ut radius	^{II} ad secantem lateris,	^{III} ita secans comp. ang.	^{IIII} ad sec. ang. reliqui
ut radius	ad sin. comp. lateris,	ita sinus anguli dati,	ad sin. comp. ang. rel.
ut secans lateris	ad radium,	ita sinus ang. dati	ad sin. comp. ang. rel.
ut sinus cōp. lat.	ad radium,	ita sec. cōp. an. dati,	ad secantē ang. reliq.

Ex ba-



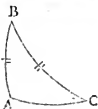
Ex basi & angulo dato, per 7 porisma 13 hujus.

ut radius	ad secantem basim,	ita tang. compl. ang. dati,	ad tang. ang. reliq.
ut radius	ad sin. comp. basim,	ita tang. anguli dati	ad tang. comp. rel.
ut secans basim	ad radium,	ita tang. anguli dati	ad tang. comp. rel.
ut sin. comp. basim	ad radium,	ita tang. compl. ang. dati.	ad tang. ang. reliq.



Ex basi & latere adjacente; per sextum porisma 13 hujus.

ut radius	ad tang. comp. lat.	ita tangens basim	ad secant. anguli.
ut radius	ad tang. lateris	ita tang. comp. basim	ad sinum compl. ang.
ut tang. lateris	ad radium,	ita tang. comp. basim	ad sinum compl. ang.
ut tang. comp. lat.	ad radium	ita tang. basim	ad secant. anguli.

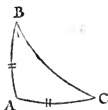


Ex basi & latere opposito; per secundum porisma 12 hujus.

ut radius	ad secant. comp. basim	ita sinus lateris,	ad sinum anguli
ut radius	ad sinum basim	ita sec. comp. lat.	ad sec. comp. ang.
ut sec. comp. basim	ad radium	ita sec. comp. lat.	ad sec. comp. ang.
ut sinus basim	ad radium	ita sinus lateris	ad sin. anguli.

Y

Ex



Ex utroque latere ; per tertium porisma 13 hujus.

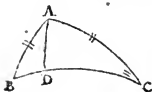
^I ut radius	^{II} ad sec. cōp. lat. unius, ita tang. lat. alt.	^{III} ad tang. ang. oppos.
^{IV} ut radius	^V ad sinum lat. unius, ita tãg. cōp. lat. alt.	^{VI} ad tãg. cōp. ang. op.
^{VII} ut sec. cōp. lat. uni.	^{VIII} ad radium,	^{IX} ita tãg. cōp. lat. alt.
^X ut sinus lat. unius	^{XI} ad radium,	^{XII} ita tang. lat. alteri. ad tang. ang. oppos.

In Obliquangulo Triangulo

inveniuntur

LATVS & ANGVLII DVO.

Ex duobus lateribus, & angulo uni eorum opposito ;
insuper data specie anguli alteri dato lateri op-
positi : per primum porisma 15 hujus.

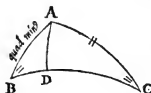


Arcus enim perpendicularis demissus ab
angulari puncto datorum laterum in tertium
latus, continuatum si necesse sit, secat obli-
quangulum triangulum datum in duotri-
angula rectangula : ex quorum calculo quesita
dantur.

ANGV-

ANGVLVS ET LATERA DVO.

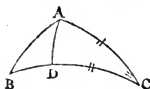
Ex duobus angulis & latere uni eorum opposito; si
constet utrum tertium latus quadrante
majus sit, an minus: *per secundum*
porisma 15 hujus.



Perpendicularis siquidem arcus à termino lateris dati in latus utrique angulo dato adiacens (continuum si oportet) descriptus, partitionatur obliquangulum triangulum datum in duo Triangula rectangula; ex quorum datis postulata innoscunt.

LATVS ET ANGVLVS DVO

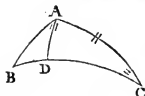
Ex duobus lateribus, & angulo ab iis comprehenso; *per*
terium porisma 15 hujus.



Arcus enim perpendicularis, à termino lateris unius dati emissus in alterum latus datum (productum si necesse sit) obliquangulum triangulum in duo triangula rectangula dividit; ex quorum calculo ignota colliguntur.

ANGVLVS ET LATERA DVO

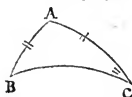
Ex duobus angulis & latere utriusque angulo adiacente, *per quartum porisma 15 hujus.*



Nam arcus perpendicularis ab angulo alterutro in oppositum latus (continuum si necesse sit) egrediens, obliquangulum Triangulum in duo Triangula rectangula secat, ex quorum calculo postulata dantur.

GEOMETRIÆ TRIANGVLORVM ANGVLVS

Ex duobus lateribus & angulo uni eorum opposito ;
per primum porisma 16 hujus. Nam

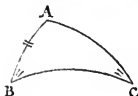


^I Vt sinus lateris dati, ^{II} ad sinum anguli oppositi ;

^{III} ita sinus alter. lateris dati, ^{IIII} ad sinum ang. oppositi.

L A T V S

Ex duobus angulis, & latere uni eorum opposito ; per
secundum porisma 16 hujus. Nam



^I Vt sinus anguli dati, ^{II} ad sinum lateris oppositi ;

^{III} ita sinus alter. ang. dati, ^{IIII} ad sinum lateris oppositi.

L A T V S T E R T I V M

Ex duobus lateribus, & angulo
ab iisdem comprehenso ;
per primum porisma
17 hujus. Nam



^I Vt radius ^{II} ad sinum rectum,
lateris unius

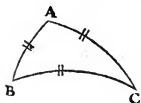
^{III} ita sinus rectus ^{IIII} ad quartum,
lateris alterius

^I Vt radius ^{II} ad quartum

^{III} ita sinus versus ^{IIII} ad differentiam si-
anguli dati

nam versus tertii lateris, & reliquorum laterum differentie. Hæc vero differen-

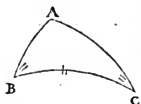
differentia ad sinum versum differentie laterum adjecta, componit sinum versum lateris quaesiti.



ANGVLVS QVIVIS

Ex tribus lateribus; per secundum porisma 12 hujus. Nam

^I Vt radius	^{II} ad sinum rectum lat. unius,	^{III} ita sinus rectus later. alterius	^{IIII} ad quartum.
^I Vt quartus	^{II} ad radium,	^{III} ita differentia si- num versum ter- tius lat. & reliq. late- rum differentie.	^{IIII} ad sinum versum ang. quaesiti.

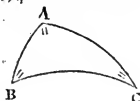


ANGVLVS TERTIVS.

Ex duobus angulis, & latere utrique angulo adjacente; per tertium porisma 17 hujus. Nam

^I Vt radius	^{II} ad sin. rectum anguli unius,	^{III} ita sin. rectus ang. alterius	^{IIII} ad quartum
^I Vt radius	^{II} ad quartum	^{III} ita sinus versus lateris dati	^{IIII} ad differen-

tiarum sinuum versorum quaesiti anguli, & differentie anguli unius dati, & alterius ad semicirculum residui. Differentia igitur hec addita ad sinum versum anguli unius dati, & reliqui ad semicirculum complementi, componit sinum versum anguli quaesiti.



LATVS QVODVIS.

Ex tribus angulis; per quartum
porisma 17 hujus. Nam

I Vi radius	II ad sinum rectum anguli unius,	III ita sinus rectus ang. alterius	IIII ad quartum
I Vi quartus	II ad radium,	III ita differentia si- numm vers. tertii ang. & differen- tie ang. unius, & alterius ad semi- circulum residui.	IIII ad sinum versum lateris quesiti.

F I N I S.

Μόνω τῷ Θεῷ δόξα.



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B. 9.

Handwritten text on a small label in the top right corner.

